





THE UNIVERSITY  
OF ILLINOIS  
LIBRARY

720.5  
ARB  
v.37





**CENTRAL CIRCULATION BOOKSTACKS**

The person charging this material is responsible for its return to the library from which it was borrowed on or before the **Latest Date** stamped below.

Theft, mutilation, and underlining of books are reasons for disciplinary action and may result in dismissal from the University.

TO RENEW CALL TELEPHONE CENTER, 333-8400

UNIVERSITY OF ILLINOIS LIBRARY AT URBANA-CHAMPAIGN

AUG 20 1992

MAY 20 1993


When renewing by phone, write new due date below  
previous due date.

L162









Digitized by the Internet Archive  
in 2023 with funding from  
University of Illinois Urbana-Champaign







1913.

VOLUME  
THIRTY-SEVEN.

JANUARY—  
JUNE.

# THE ARCHITECTS' & BUILDERS' JOURNAL.

*A Weekly Journal for Architects Surveyors  
Builders and Constructional Engineers.*

*It is our aim, our ambition, our aspiration even, to build our Journal worthily and well, not for the hour only, but for future years; for the few men in the forefront of an enduring and a laborious art; for the disciplined ranks of a distinguished profession; for the young men—Architects to be—and for all who love a clustered column or a flying buttress, a traceried window or a Greek frieze; for the man, too, who honestly plumbs a jamb.*

TECHNICAL JOURNALS, LTD.,  
CAXTON HOUSE, WESTMINSTER.







# CONTENTS.

See also Concrete and Steel Section.

## ABBOT'S HOSPITAL, GUILDFORD,

629.  
Abraham Lincoln, A Greek, 164.  
"Academy Architecture," 50.  
Admiralty Arch, 392.  
Albany, New York, State Education Building, 613.  
Albert Hall, Fire Precautions at, 78.  
Alma-Tadema's Studio, Sir Lawrence, 536.  
Amateur Critic, Education of the, 57.  
American: Bank, 564; Machine Shop, Modern, 574; Nation, Monument to the, 205.  
Ancient Buildings, Society for the Protection of, 151.  
Ancient Monuments Bill, 458.  
Answers to R.I.B.A. Examination Questions, 307, 330, 357, 387, 407, 439, 472, 524, 548, 572, 599.  
Approach, The Mall, 164.  
Arbitration Clause in Contracts, 45.  
Arbitrator, Architect as, 268.  
Arch, Admiralty, 392.  
Architect: as Arbitrator, 268; Education of an, 165.  
Architect's Housing Scheme, 604.  
Architects and the Public Taste in Architecture, 84.  
Architects' Defence Fund, Proposed, 634.  
Architects' Responsibilities, 262.  
Architecture: Cosmopolitan, 3; at the Royal Academy, 483; Modern, 583, 585; Permanence of, 239.  
Architectural Association: Dinner, 529; House List, 1913-14, 212.  
Architectural: Composition, 317; Conditions in Canada, 115, 138; Drawings, 394; Models, 507.  
Art and Craft of the Cabinetmaker, 50.  
Art of Delaying, 240.  
Arts and Crafts, English, 112.  
Arts Building: Liverpool University, 540; Manchester University, 639.  
Atelier, The London, 477.  
Atelier Question, 576.  
Australia, Revised Plan of New Federal Capital, 88.  
Australian Federal Capital Competition, 181.

## BANK: AMERICAN, 564; National Shawmut, Boston, U.S.A., 348; New London, 269.

Bartlett, Sir H. H., 52.  
Bath and Portland Stone Firms, 388.  
Bath City Improvement Scheme, 577.  
Beaux-Arts, Blemishes in the, 608.  
Belfast Working-Class Dwellings Competition, 285.  
Berlin, New Opera House for, 107; Skyscrapers for, 46.  
Bibliothèque Ste. Geneviève, 348.  
Bickley, Kent, House at, 348.  
Bill, Ancient Monuments, 458.  
Bills of Quantities, Tendering for, 458.  
Birmingham, New Blue-Coat School, 314.  
Birthday Honours List, 698.  
Blue-Coat School, Birmingham, 314.  
Bolton, Hall i' th' Wood, 50; St. George's Church, 323.  
Book Reviews: Practical Cabinet Making and Draughting (Rudd), 50; "Note-book on Architecture" (Fox), 50; "Story of Architecture in Oxford Stone" (Greening), 50; "Academy Architecture" (Koch), 50; "Short Critical History of Architecture" (Statham), 169; "Some Eighteenth-Century French Interiors," 332; "Year's Art, 1913," 332; "Architectural Association Sketch Book, 1912," 332; Reinforced Concrete Construction (Cantell), 336; "Manual on Foundations and Machinery Fixing" (Davies), 361; "Spon's Architect's and Builder's Pocket Price Book and Diary, 1913," 361; "One and All Gardening" (Greening), 362; "Local Legislation: Supplement for 1912" (Keen), 362; "The English Fireplace" (L. A. Shuffrey), 476; "The Art of Colour Decoration" (J. D. Crace), 476; Spon's "Practical Builders' Pocket-Book," 477; "The War Against Bribery" (R. M. Leonard), 477; Lockwood's Price Book, 477; Modern Sanitary Engineering (Gilbert Thomson), 477; "How to Estimate" (John T. Rea), 477; "A Treatise on Cement Specifications" (Jerome Cochrane), 477; "Hungary" (Barsony, etc.), 694;

"Bristol Chamber of Commerce Year Book" (Hilliard), 604; "Greek Refinements" (Goodyear), 677.  
Boring at St. Paul's, 108.  
Boston, Mass.: National Shawmut Bank, 348; Shaw Monument, 639.  
Botolph Lane, Wren's House in, 431.  
Bramante, 6.  
Brick Chimneys, Stability of, 674.  
Brickwork of Pentonville, 662.  
Bridge: and the Scenery, 584; New Southwark, 405; Richmond, 4, 392.  
British Museum Extension, 405.  
British School at Rome: Courtyard of the, 540; Design, 314.  
Builder's Jewel, 265.  
Building: Accidents, 458; Firm, a Modern (Messrs. W. Nicholson and Son, Ltd.), 678; in Ceylon, 53; Industry, Blow at the, 112; Owner, to Protect the, 430; Trade Revival, 266; Trades Exhibition, Olympia, 368, 385, 410-426, 444-454.  
Buildings for Small Holdings, 560, 588, 590, 624.  
Burlington Arcade, New Storey to, 514.  
Business Premises, Hanover Square, London, 489.  
By-Law: Absurdities, 392; as to Hollow Walls, Liverpool's, 362.

## CABINET MAKER, ART AND CRAFT OF THE, 50.

Calcutta, City Architect and Surveyor for, 107.  
Cambridge: Open Court of St. Catharine's, 29; Some College Extensions in, 257.  
Canada: Architectural Conditions in, 115, 138; New Parliament Buildings for, 634.  
Casement, Sash or, 633.  
Cathedral, St. Paul's, Peril of, 622.  
Cathedrals, Care of the, 240.  
Ceylon, Building in, 53.  
Château de Chantilly, Stables at the, 5.  
Chelsea, Charm of Old, 610.  
Chimneys: Brick, Stability of, 674; Smoky, Problem of, 61.  
Church: Building, 607; of Christ Scientist, Third, 280; St. Anne's, Oldham, 218; St. George's, Thornton Hough, 564; St. George's Bolton, 323; Saxon Timber, 155; Tower, 73.  
Cinema, Super-, 342.  
City Architect and Surveyor for Calcutta, 107.  
Clapham Common, Old Houses on, 579.  
Clapham, Last of Old, 392.  
Classic Spirit, 457.  
Clause, Arbitration, in Contracts, 45.  
Clerks of Works' Association Dinner, 212.  
Cleveland, New Federal Building, 31, 62.  
Clock for Hull, Large, 286.  
Clonmel, South African War Memorial, 638.  
Club, United University, Pall Mall, 665.  
Coal Gas for Domestic Purposes, 287, 384.  
College Extensions in Cambridge, 257.  
Coming Events, 54, 80, 108, 132, 160, 186, 213, 236, 262, 288, 314.  
Companies, New, 654.  
Comparative Costs of Domestic Heating, 47, 153.  
Compendium, Practical, 89.  
Competition: Another Unsatisfactory, 30; Architectural, 317; Australian Federal Capital, 181; Complaint, 84; Dublin Municipal Buildings, 473; for Elevations of Suburban House, 609, 662.

## COMPETITIONS—

Arbroath Public Baths, 601.  
Australian Capital, 77.  
Bacup, Lay-out of Park, 409.  
Balham, New Baths, 159.  
Barnet, Children's Home, 259.  
Barnet Municipal Offices, 550, 679.  
Belfast Working-Class Dwellings, 285.  
Blackburn Street Improvement Scheme, 443, 679.  
Bradford Dwellings, 648.  
Bradwell Sanatorium, Stoke-on-Trent, 284.  
Bridport Hospital, 363.

Bristol Fine Arts Academy, Lunette Paintings, 528.  
British School at Rome: Architectural Scholarship, 259.  
Cambuslang, School, 103.  
Canadian Parliament Buildings, Ottawa, 648, 679.  
Chard Y.M.C.A. Building, 363, 628.  
Consett Baptist Schools, 679.  
Coventry, Church, Schools, and Institute, 648.  
Coventry Municipal Technical Institute, 679.  
Devonport Municipal Buildings, 77, 259, 284, 679.  
Dublin Municipal Art Gallery, 528.  
Dublin Municipal Buildings, 369.  
Edinburgh Government Buildings, 363, 550.  
Essay Prizes, Two, 20.  
Exeter, University College, 363, 386.  
Glasgow, Langside Library, 159.  
Glasgow Municipal Buildings Extension, 502.  
Government Buildings, Whitehall, 679.  
Harrogate Elementary School, 528.  
Henry Jarvis Travelling Studentship, 259.  
House-Planning, 320.  
Huddersfield Corporation Town-planning, 20.  
Ipswich Garden Suburb, 550.  
Kirkcaldy New School, 443.  
Leeds, First Church of Christ Scientist, 386, 528.  
L.C.C. School Designing, 312.  
Manchester University, New Building for Faculty of Arts, 20.  
Motherwell High School, 648.  
Museum Drawings, Prizes for, 159.  
Newcastle-on-Tyne, Parish Church, 236.  
Newcastle-on-Tyne Public Baths, 443.  
Newtown, Elementary School, 127.  
Oldham, Town-planning Scheme, 211.  
Paris Cheap Dwellings, 210, 259.  
Prix de Rome Jury, 210.  
Rangoon Municipal Buildings, 443.  
Reading, New Kendrick Schools, 601.  
Reinforced Concrete Construction Card, Design for, 623.  
Rome Scholarship in Architecture, 679.  
R.I.B.A. Prizes and Studentships, 236; 1914, 502.  
Sale, Cheshire, Proposed New School, 573.  
Staines (Middlesex), Cottage Hospital, 502.  
Suburban House, Small, 191, 219, 255, 269, 292, 392, 459, 486.  
Swaffham, Rural Housing, 259.  
Swansea Police Station, 363.  
Vancouver, University, 103.  
Walker Estate, Newcastle-on-Tyne, Lay-out of, 409.  
Winnipeg, New City Hall, 284.  
York, Swimming Bath, Bootham School, 284.  
Competitions and Registration, 4.  
Construction and Stone-cutting of a Pendentive Dome, 396, 433.  
Competitions Open, 50, 77, 103, 127, 159, 181, 210, 236, 284, 386, 409, 443, 480, 502, 550, 573, 601, 628, 648.  
Construction of Schools, 600.  
Contracts, Arbitration Clause in, 45.  
Contracts, Unsealed, 658.  
Corporation with a Soul! 318.  
Corporation Trafficking, 485.

## CORRESPONDENCE—

"Comparative Costs of Various Methods of Construction," by W. J. Swain, 7.  
"Building Construction in Technical Schools," by Fredk. Dyer, 7.  
"Mr. Wells's Presidential Address," by Colin Sinclair, 7.  
"The Society of Architects' Scheme for Ateliers," by R. Goulburn Lovell, 35.  
"Mr. Wells's Presidential Address," by Percy J. Waldram, 36.  
"Area of a Circle," by R. E. Marsden, 74.  
"An Estimate of Norman Shaw," by Harold Falkner, 74.  
"Reinforced Concrete Slabs," by J. B. Griffith, 74; J. Weston, 75.  
"Architects and Shopfitters," by E. Pollard and Co., 75.  
"The Future of English Architecture," by Stanley C. Ramsey, 99.

"Architectural Training," by C. McArthur Butler, 99.  
"The Problem of Smoky Chimneys," by A. O. Collard, 100.  
"Building Construction in Technical Schools," by K. H. Read, and A. W. B., 101.  
"The Problem of Smoky Chimneys," by L. E. W., 117.  
"Mr. E. P. Wells's Presidential Address," by H. Kempton Dyson, 117.  
"The Problem of Smoky Chimneys," by Percy May, 141.  
"Experimental Concrete Cottages," by P. T., 142.  
"The Colour of Rosewood," by W. J. S. Perrin, 142.  
"Fire Precautions at the Royal Albert Hall," by A.R.I.B.A., 141.  
"Mr. Wells's Presidential Address," by F. Rings, 141; by Percy J. Waldram, 142.  
"Planning of Small Houses," by E. H. Ward, 170.  
"District Surveyors' Fees," by A. E. D., 170.  
"Mr. Wells's Presidential Address," by H. Kempton Dyson, 170.  
"The Vista," by H. L. Honeyman, 221.  
"Proposed L.C.C. Regulations for Reinforced Concrete," by Percy J. Waldram, 221.  
"The Problem of Smoky Chimneys," by Edwin Gunn, 222.  
"The Prix-de-Rome Jury," by Robert W. Cable, 255.  
"The L.C.C. Architects' Department," by E. R. Robson, 255.  
"School Equipment: Its Influence on Planning," by Dan W. Thomas and J. Herbert Hulme, 271.  
"School Equipment: Its Influence on Planning," by Philip A. Robson, 271; by A. E. Munby, 271.  
"Mr. Wells's Presidential Address," by H. Kempton Dyson, 272.  
"Ipswich Garden Suburb Competition," by Adsum, 272.  
"Smoky Chimneys," by L. E. W., 272.  
"The Cheap Cottage," by S. B. K. Caulfield, 297.  
"The Strength of Camber Arches," by L. E. W., 298.  
"Shop-Front Philosophy," by E. Pollard, 298.  
"The Shop Front of Yesterday," by Jas. Young, 324.  
"The Strength of Camber Arches," by R. W. C., 324.  
"The Cheap Cottage Problem," by W. J. Swain, 347.  
"Strength of Circular Arches," by Henry Adams, 348.  
"The Cheap Cottage Problem," by S. B. K. Caulfield, 372.  
"The Small Suburban House," by P. Leonard James, 372.  
"The Strength of Camber Arches," by L. E. Walker, 372.  
"Test Deflections in Reinforced Concrete," by Percy Waldram, 373.  
"The Planning of Working-Class Dwellings," by Builder, 373.  
"The Regent Street Quadrant Report," by Arthur Keen, 373.  
"Official Architecture," by "Subscriber," and "A.R.I.B.A.," 436.  
"The Cheap Cottage," by Thomas Potter, 437.  
"The Strength of Camber Arches," by R. W. C., 437.  
"Against the Garden Suburb Movement," by "Englishman," 464.  
"The Cheap Cottage," by "Clerk of Works," W. J. Swain, and Thomas Potter, 488.  
"The Garden Suburb Movement," by G. H. Russell, 489.  
"The Garden Suburb Movement," by the Editor, "Co-Partnership," 522.  
"The Strength of Camber Arches," by L. E. Walker, 522.  
"Dublin Municipal Buildings Competition," by Cork Hill and William Lalor, 522.  
"Local Museums," by V. A. Flower, 539.  
"London Master Builders' Association and the Plasterers' Strike," by Walter Lawrence, Jun., 539.  
"A Portable School," by G. Topham Forrest, 563.



- "The Cheap Cottage," by Thomas Potter, 564.  
 "The Garden Suburb Movement," by Englishman, 589.  
 "The Architects' and Surveyors' Approved Society," by F. R. Yerbury, 590.  
 "Portable Schools," by George H. Widdows, 590.  
 "The Real Renaissance," by Helenicus, 623.  
 "The Cheap Cottage," by W. J. Swain, 623.  
 "L.G.B. Standard Plans for Working-Class Dwellings," by Surprised, 637.  
 "Buildings for Small Holdings," by George Reavell, jun., 637.  
 "The Rhodes Memorial in the Royal Academy," by G. Norburn, 637.  
 "Gas Water Heaters," by W. M. Mason, 637.  
 "Fillets Embedded in Concrete," by Thomas Potter, 637.  
 Cosmopolitan Architecture, 3.  
 Costs of Domestic Heating, Comparative, 47.  
 Cottage Building, Experiment in, 256.  
 Cottage, "Standard," 341.  
 County Hall, London's New, 286.  
 Courtyard of the British School at Rome, 540.  
 Crane Scaffold, Paris, Remarkable, 672.  
 Critic, Amateur, Education of the, 57.  
**DEFENCE FUND, PROPOSED ARCHITECTS',** 634.  
 Delaying, The Art of, 240.  
 Delhi: Architects, 135; And the Indian Craftsman, 634; New, 10; Residences for the New, 512; Site Problem, 370.  
 Demolition of Southwark Bridge, 217.  
 Design and Architectural Treatment of the Shop, 463.  
 Design, British School at Rome, 314.  
 Dinner, Architectural Association, 529; R.I.B.A., 627; Society of Architects', 479.  
 District Surveyors' Fees, 9.  
 Diviners, Water, 368.  
 Dome, Pendentine, Construction and Stone-Cutting of a, 396, 433.  
 Domestic Purposes, Coal Gas for, 287, 384.  
 Drawings and Designs, R.I.B.A., 179; Architectural, 394; for the R.I.B.A. Competitions, 113.  
 Dublin Municipal Buildings Competition, 369, 473.  
 District Surveyors' Fees, 136.  
**EDINBURGH, NEW BUILDINGS IN,** 479; New Government Buildings for, 164.  
 Edition de Luxe, Our, 103.  
 Education of an Architect, 165.  
 Education of the Amateur Critic, 57.  
 Eighteenth-Century French Interiors, 331.  
 Elections, R.I.B.A. Annual, 648; Society, 504.  
 Electric Lighting of Westminster Abbey, 498.  
 Embankment Scheme, 84.  
 Embankment, The Unfinished, 534.  
 English: Architecture, Tradition in, 163; Arts and Crafts, 112; Prix de Rome, 90.  
 Enlargement of Paddington and Waterloo Stations, 155.  
**ENQUIRIES ANSWERED—**  
 Architects' Assistants in Canada, 209.  
 Book on Steam Plant, etc., 527.  
 Books on Working-Class Houses, 382.  
 Buildings in or near Blackpool, Interesting, 527.  
 By-laws and Cheap Cottage Building, 208.  
 Calculation for Span of Rolled Joist, 554.  
 Cesspool Construction, 76.  
 Compensation after Vacation of Tenancy, 382.  
 Concrete Testing Machines, 526.  
 Converting Warehouse into Residence, 76.  
 Cottage Hospitals, 208.  
 Count Rumford's Essays, 672.  
 Easement for Advertisement Sign-board, 382.  
 Effect of Insurance Act on Building, 526.  
 Faience and Terra-Cotta, Designing in, 672.  
 Government Publications, 383.  
 Hot-Water Cylinder Tank System, 76.  
 Load on Girder, 672.  
 Loads in Structures, 208.  
 Making Up Street; Apportionment of Cost, 208.  
 Oak Balcony on Lead Flat, 672.  
 Orientation, 526.  
 Post-Graduate Studies in Design, 208.  
 Prohibitive Clause in Articles of Pupilage, 208.  
 Reinforced Concrete Formulæ, 554.  
 Reinforced Floor, Strength of, 554.  
 Roof for Motor Showroom, 77.  
 Roof Truss for Assembly Hall, 526.  
 R.I.B.A. Freehand Subjects: Books on Paris Architecture, 382.  
 Safe Distributed Load on Wood Beams, 672.  
 Setting up a Three-Screw Level, 527.  
 Size of Pipes for Private Fire Main, 77.  
 Skittle Alley, Modern, 208.  
 Smoky Chimney, Curing a, 383.  
 Solid Wood Floor, 383.  
 Specification for Rough-Cast, 208.  
 Storage of Petrol, 382.  
 Street Paving Problem, 672.  
 Stresses on Cranked Girder, 527.  
 Timber-Frame Building, Re-erecting, 526.  
 U.D.C. and Provision of Sewers, 383.  
 Ventilating Cavity Walls, 383.  
 Waterproof Roofing Material, 526.  
 Equipment, School: Its Influence on Planning, 192.  
 Euston Station, Re-modelling, 240, 508.  
 Evolution in Architecture, 49.  
 Examination Questions, Model Answers to R.I.B.A., 307, 330, 357, 387, 407, 439, 472, 524, 548, 572, 599.  
 Examination Results, R.I.B.A., 104.  
 Excavations, Sardis, 128.  
 Exhibition, Building Trades, Olympia, 368, 385, 410-426, 444-454.  
 Exhibition Promoters, Liabilities of, 240.  
 Experiment in Cottage Building, 256.  
**FEDERAL BUILDING, CLEVELAND, NEW,** 31, 62.  
 Federal Capital Competition, Australian, 181; Revised Plan for, 88.  
 Federation, National, 112, 158.  
 Fees, District Surveyors', 9, 136.  
 Fees on a Large Scale, 112.  
 Ferguson Library, Stamford, U.S.A., Doorway to, 464.  
 "Field Day" with Theodolites, 677.  
 Fire Offices' Committee's Rules for Mills, 282.  
 Fire Precautions at the Royal Albert Hall, 78.  
 Fire Prevention, Manual of, 385.  
 Fire Prevention Notes, 78, 182, 282, 501, 501.  
 Fire Service in Russia, 600.  
 Flockhart, William: An Appreciation, 535.  
 Flues, Geyser, 634.  
 Formal Architecture in a Picturesque Setting, 557.  
 French: Architecture, Modern, 319; Architectural Drawings, 508; Interiors, Eighteenth Century, 331; Invasion, 111.  
**CARE DU NORD, PARIS,** 435.  
 Gas, Coal, for Domestic Purposes, 287, 384.  
 General Line of Building, Railways and, 342.  
 Geyser Flues, 634.  
 Gold Medal Address, Mr. Blomfield's, 659.  
 Golden House, Nero's, 6.  
 Government Buildings, New Scottish, 58, 164.  
 Grand Palais, Paris, Sculpture on, 464.  
 Godalming Town Hall, 485, 508.  
 Goldsmiths' Hall, 612.  
 Great Marlow, Marlow Place, 195.  
 Greek Abraham Lincoln, 164.  
 Guildford, Abbot's Hospital, 629.  
**HALL: GOLDSMITHS',** 612; I' th' Wood, Bolton, 50; and Staircase, 40; Upper Grosvenor Street, London, 613.  
 Hampstead, House at, 371; Unhappy, 342.  
 Hampton Court, Reception at, 558.  
 Harvard University, Medical School, 489.  
 Heating, Domestic, Comparative Costs of, 47, 153.  
 Here and There, 34, 64, 87, 118, 140, 168, 197, 220, 246, 270, 296, 374, 400, 432, 462, 490, 511, 538, 562, 598, 614, 640, 666.  
 History of Architecture, Critical, Short, 169.  
 History of Street Paving, 286.  
 Hollow Walls, Liverpool's New By-Law as to, 362.  
 Hospital: Children's, Birmingham, 539; King's College, Pathological Department, 665.  
 Hospitals, Modern, Planning of, 243.  
 Hotel Façade, Waldorf, 298.  
 Hotel, Mayfair, London, 613.  
 House: at Bickley, Kent, 348; at Cholsey, Berks, 665; at Dore, Sheffield, 590; at Farnham, Surrey, 540; at Hampstead, 371; at Ilkley, Yorks, 464; at Khartoum, 73; at Kingswood, Surrey, 489; at Reigate, 348; at Stafford, 405; at Westcott, near Dorking, Surrey, 613; "Heath Lodge," Headley, Surrey, 489; "Hengrove," St. Leonards, Wexford, Bucks, 639; in the Grand Duchy of Luxemburg, 564; "Lombarden," Limpsfield, Surrey, 464; "Moorigs," Cooden Beach, 435; Nero's Golden, 6; Painting and Decoration, Seasonable Hints on, 358; Small Suburban, 164, 191, 255.  
 House-Planning Competition, 320.  
 Houses: in the City, Old, 116; on Clapham Common, Old, 579; Modern Small, 8, 36, 73, 101, 116, 142, 169, 195, 222, 255, 272.  
 Housing Scheme, Architect's, 604.  
 Hull, Large Clock for, 286.  
**INDICTMENT OF POST-IMPRESSIONISM,** 152.  
 Indirect Lighting, 154.  
 Improvement of Modern Architecture, Suggestions for, 206.  
 Inexpensive Sanatoria, 241.  
 Invasion, French, 111.  
 Island Site, Kingsway, 266.  
 Illumination, Science of, 346.  
 Institution of Electrical Engineers, Lecture Hall, 464.  
 Improvement Scheme for South Side of London, 514.  
 Improvement Scheme, Bath, 577.  
 Institute Royal Gold Medal, 656.  
**JACKSON, SIR THOMAS GRAHAM,** 51.  
 Jewel, The Builder's, 265.  
**KHARTOUM, HOUSE AT,** 73.  
 Kingsway Island Site, 266.  
 King's College Hospital, Pathological Department, 665.  
**LA BACATELLE, PARIS,** 635.  
 Lady Margaret Hall, Oxford, 665.  
 Land Valuation and the Lumsden Case, 136, 365.  
 Land Valuation Legerdemain, 292.  
 Lavenham, Old Houses at, 106.  
**LEADING ARTICLES AND NOTES—**  
 Cosmopolitan Architecture, 3.  
 Risking St. Paul's; Competitions and Registration; Richmond Bridge, 4.  
 The Open Court of St. Catharine's, Cambridge, 29.  
 Another Unsatisfactory Competition; Regent Street Quadrant, 30.  
 The Education of the Amateur Critic, 57.  
 The St. Paul's Controversy; The Red Houses in Regent's Park, 58.  
 Another Suggestion for the King Edward Memorial; The New Scottish Government Buildings, 58.  
 Recruiting the London Society, 83.  
 Architects and the Public Taste in Architecture, 84.  
 The Competition Complaint; The Embankment Scheme; R.I.B.A. Prizes and Studentships, 84.  
 The French Invasion, 111.  
 Fees on a Large Scale; A Blow at the Building Industry, 112.  
 English Arts and Crafts; The National Federation, 112.  
 The Delhi Architects, 135.  
 District Surveyors' Fees; Land Valuation and the Lumsden Case, 136.  
 Tradition in English Architecture, 163.  
 The Small Suburban House; The New Government Buildings for Edinburgh; The Mall Approach; A Greek Abraham Lincoln; The Richmond Bridge Impasse, 164.  
 Official Town Planning and Expert Advice, 189.  
 The King Edward Memorial; Some Views on Art and Architecture; Insurance Act Responsibilities; A Ghent Exhibit, 190.  
 The Transience of Technical Planning, 215.  
 A Poor-Spirited Action; The Lumsden Case; the L.C.C. Architect's Department; The Modern Problem, 216.  
 The Permanence of Architecture, 239.  
 Liabilities of Exhibition Promoters; Remodelling Euston Station; The Care of the Cathedrals; The Art of Delaying, 240.  
 The Builder's Jewel, 265.  
 The Building Trade Revival; The Kingsway Island Site, 266.  
 The L.G.B. and the Municipal Ownership of Land, 291.  
 The Future Regent Street; The Small Suburban House Competition; Land Valuation Legerdemain; A Meanly Conceived Competition, 292.  
 Architectural Composition, 317.  
 The Shop-Front Problem; The Question of Wall-Coverings; A Corporation with a Soul!; A Plea for a Parlour, 318.  
 The "Standard Cottage, 341.  
 St. Saviour's, Southwark; Unhappy Hampstead; The Super-Cinema; Railways and the General Line of Building, 342.  
 Official Architecture, 367.  
 The Building Trades Exhibition; The Passing of Sion House; The Water Diviners; A Wonderful Collection, 368.  
 The Problem of Science and Art, 391.  
 The Suburban House Competition; The Last of Old Clapham; Richmond Bridge; By-law Absurdities; The Admiralty Arch, 392.  
 The Trend of Theatre Design, 429.  
 A New Departure (Society of Architects and Music); A Town Planning Tangle; To Protect the Building Owner; Manchester Royal Exchange, 430.  
 The Classic Spirit, 457.  
 Ancient Monuments Bill; Tendering for Bills of Quantities; Problem of Our Shops; Building Accidents, 458.  
 Architecture at the Royal Academy, 483.  
 Godalming Town Hall; Responsibility for a Falling Ceiling; Corporation Trafficking, 485.  
 Architectural Models, 507.  
 French Architectural Drawings; The Water-Divining Report; Godalming Town Hall; The Rome Scholarship in Sculpture; The New Euston, 508.  
 Professional Status, 533.  
 The Unfinished Embankment; The London Plasterers' Strike; Westminster Hospital; Costly Water, 534.  
 Formal Architecture in a Picturesque Setting, 557.  
 St. Peter's Square, Hammersmith; Deception at Hampton Court; Sketching and Measuring; Town Planning Schemes; A Memorial to Van Eyck, 558.  
 Modern Architecture, 583.  
 Our Small Suburban House Competition; Road Surfaces; The Bridge and the Scenery, 584.  
 Church Building, 607.  
 The Late Mr. John Oldrid Scott; The Protection of Old Buildings; Blemishes in the Beaux-Arts; The Birthday Honours List, 608.  
 Sash or Casement? 633.  
 New Delhi and the Indian Craftsman; Geyser Flues; Proposed Architects' Defence Fund; New Parliament Buildings for Canada, 634.  
 The Institute Royal Gold Medal, 656.  
 Water Board Charges; Re-gilding the Cross of St. Paul's; The L.C.C. and Reinforced Concrete Construction; Unsealed Contracts, 658.  
 Leadless Paints, 575.  
 Leeds and Yorkshire Architectural Society Officers and Council, 528.  
**LEGAL CASES—**  
 Marble for the Queen Victoria Memorial, 127.  
 Architects' Fees Where Work is not Carried Out, 479.  
 A Question of Extras, 479.  
 Liability for Loss of Insurance Cards, 479.  
 Liability for Drainage Reconstruction, 479.  
 Claim for Extras, 184.  
 District Surveyors' Fees, 409.  
 Architects' Fees for Works not Executed, 127.  
 Damage to Adjacent Premises, 504.  
 Liability for Accident, 525.  
 Inserting a Damp-Course; Notice Necessary, 525.  
 Action Against a Trade Union Official, 554.  
 Building Notice for a Simple Addition, 579.  
 Appointing an Architect, 602.  
 Liabilities of Exhibition Promoters, 240.  
 Library, Ferguson, U.S.A., Doorway to, 464.  
 Lighting, Indirect, 154.  
 Lighting of City Streets, 52.  
 Liverpool: Architectural Society, 473; Cathedral, Great Organ for, 50; Scheme for Pierhead, 610; University, Arts Building, 540.  
 Liverpool's New By-law as to Hollow Walls, 362.



- L.G.B. and Municipal Ownership of Land, 291.  
 London: Atelier, 477; Bank, New, 269; South Side, Scheme for Improvement of, 514; Museum, New Home of, Stafford House, 559.  
 London County Council, 530; Architect's Department, 216; School Designing Competition, 312.  
 London Society, 102; Recruiting the, 82; and St. Vedast's Church, 53.  
 London's New County Hall, 286.  
 Lumsden Case, 216, 408; "Land Valuation" and the, 136, 363; Before Parliament, 310.
- MACHINE SHOP, MODERN AMERICAN,** 574.  
 Main Roads as a National Charge, 53.  
 Mall Approach, 164.  
 Mall Archway, 155.  
 Manchester, New Theatre, 371; Royal Exchange, 430; University, Arts Building, 639.  
 Manual of Fire Prevention, 385.  
 Marlow Place, Great Marlow, 195.  
 Mayfair Hotel, London, 613.  
 Medical School, Harvard University, 489.  
 Membership, R.I.B.A., 504.  
 Memorial to Norman Shaw, 311.  
 Memorial to Van Eyck, 558.  
 Milan, Musocco Cemetery, 10.  
 Mills, Fire Officers' Committee's Rules for, 282.  
 Model Answers to R.I.B.A. Examination Questions, 307, 330, 357, 387, 407, 439, 472, 524, 548, 572, 599.  
 Models, Architectural, 507.  
 Modern Architecture, 583, 585; Suggestions for the Improvement of, 206.  
 Modern French Architecture, 319.  
 Modern Small Houses, 8, 36, 73, 101, 116, 142, 169, 195, 222, 255, 272.  
 Monument: Shaw, Boston, Mass., 639; to American Nation, 205; to French Republic, Paris, 514.  
 Motor Notes for Builders and Architects, 629, 650, 680.  
 Municipal Ownership of Land, The L.G.B. and the, 291.  
 Municipal Works, New, 184.  
 Musocco Cemetery, Milan, 10.
- NATIONAL CHARGE, MAIN ROADS AS A,** 53.  
 National Federation, 112, 158.  
 National Shawmut Bank, Boston, U.S.A., 348.  
 Nero's Golden House, 6.  
 New Delhi, 10.  
 New Companies, 654.  
 New Theatre, Manchester, 371.  
 News Items, 24, 26, 54, 80, 107, 134, 160, 166, 211, 235, 261, 288, 312, 362, 443, 480, 503, 549, 579, 602, 628, 648.  
 Norwich Cathedral, Proposed Improvements for, 103.
- OBITUARY—**  
 Adami, Charles, 679.  
 Arrol, Sir William, 236.  
 Burnett, Joseph, 388.  
 Doyle, J. Francis, 236.  
 Eastwood, J. H., 160.  
 Edwards, J. Vickers, 530.  
 Flagler, H. M., 579.  
 Fletcher, Walter John, F.R.I.B.A., 503.  
 Flockhart, William, 409, 503, 535.  
 Gill, E. H., 211.  
 Henderson, John, 211.  
 Hick, Arthur Crawford, 211.  
 Homan, Julius, 236.  
 Huntley, Arthur, U.S.A., 186.  
 Ingram, W. A., 388.  
 James, T. E. L., 550.  
 Jennings, George, 160.  
 Lewis, W. G. Blackmore, 236.  
 Lovatt, H., 530.  
 Lumley Edmund, 579.  
 Macdonald, Robert Falconer, 236.  
 Martin, Henry, J.P., 211.  
 Mortimer, William, 503.  
 O'Sullivan, John G., 47.  
 Page, George, 186.  
 Scott, John Oldrid, 626.  
 Smith, Francis James, F.R.I.B.A., 127.  
 Smith, Sidney R. F., 409.  
 Sykes, Dr. J. F. J., 116.  
 Tristram, H. A., 262.  
 Watson, T. H., F.R.I.B.A., 127.  
 Williams, W. C., 679.  
 Winstanley, Herbert, 604.  
 Official Architecture, 367.  
 Official Town Planning and Expert Advice, 189.  
 Old Buildings, Protection of, 608.  
 Old Houses at Lavenham, 106.  
 Old Houses in the City, 116.
- Oldham: St. Anne's Church, 218; Town Planning Competition, 321.  
 Open Court of St. Catharine's, Cambridge, 29.  
 Opera House for Berlin, The New, 107.  
 Opera House, Paris, Sculpture on the, 90, 116, 170, 207, 255, 272, 295, 348.  
 Organ: Development of the, 501; for Liverpool Cathedral, The Great, 50.  
 Ornament on the Opera House, Paris, 170.  
 Our Plates, 52, 73, 159, 167, 207, 222, 295, 320, 348, 371, 405, 435, 464, 489, 514, 539, 564, 590, 613, 638, 665.  
 Ownership of Land, Municipal, The L.G.B. and, 291.  
 Oxford: Lady Margaret Hall, 665; Screen in Chapel of All Souls' College, 218; Taylorian Institution, 590.
- PADDINGTON AND WATERLOO STATIONS, ENLARGEMENT OF,** 155.  
 Paints, Leadless, 575.  
 Painting and Decoration, Seasonable Hints on, 358.
- PAPERS READ—**  
 "The Education of an Architect," by Reginald Blomfield, 165.  
 "R.I.B.A. Drawings and Designs," by W. Curtis Green, 179.  
 "Architectural Conditions in Canada," by F. S. Baker, 115.  
 "Design and Architectural Treatment of the Shop," by H. V. Lanchester, 463.  
 "Leadless Paints," by R. Claude Russell, 575.  
 "Modern Architecture," by Thomas Hastings, 585.  
 Royal Gold Medal Address, by Reginald Blomfield, 659.  
 "The Stability of Brick Chimneys," by Harold Cane, 674.  
 Parliament Buildings for Canada, 634.  
 Parliament, In, 46, 79, 105, 131, 159, 182, 212, 311, 383, 478, 500, 601, 649.  
 Paris: Gare du Nord, 435; Grand Palais, Sculpture on, 464; La Bagatelle, 635; Monument to French Republic, 514; Remarkable Crane Scaffold, 672; Re-Planning of, 52; Sculpture on the Opera House, 90, 116, 170, 207, 255, 272, 295, 348.  
 Parliament House, Vienna, 90.  
 Parlour, Plea for the, 318.  
 Paving, Street, History of, 286.  
 Pendentive Dome, Construction and Stone-Cutting of, 396, 433.  
 Pentonville, Brickwork of, 662.  
 Permanence of Architecture, 239.  
 Piccadilly Shop-Front, 630.  
 Pierhead Scheme, Liverpool, 613.  
 Plans for Working-Class Dwellings, Standard, 509.  
 Planning of Modern Hospitals, 243.  
 Plaster, Sirapite, 454.  
 Plasterers' Strike, London, 534.  
 Plea for the Parlour, 318.  
 Post-Impressionism, an Indictment of, 152.  
 Prix de Rome, English, 90.  
 Prizes and Studentships, R.I.B.A., 84.  
 Problem of Science and Art, 391.  
 Problem of Smoky Chimneys, 61.  
 Problems in Design, R.I.B.A., 6, 36, 73, 159, 167, 195, 222, 255, 272, 314, 320, 348, 464, 579.  
 Professional Status, 533.  
 Projected New Buildings, 185, 211, 259, 309, 475, 502, 530, 549, 603, 649, 676.  
 Protection of Old Buildings, 608.  
 Protection of Ancient Buildings, Society for the, 151.  
 Protecting St. Paul's Against Fire, 283.  
 Public Taste in Architecture, Architects and the, 84.
- QUADRANT, REGENT STREET, 30.**
- RAILWAYS AND THE GENERAL LINE OF BUILDING, 343.**  
 Recruiting the London Society, 83.  
 Regent Street, Future of, 292; Quadrant, 30; Report on, 293.  
 Regent's Park, Red Houses in, 58.  
 Regilding the Cross of St. Paul's, 658.  
 Registration, Competitions and, 4.  
 Reigate, House at, 348.  
 Re-planning of Paris, 52.  
 Report on Regent Street Quadrant, 293.  
 Residences for the New Delhi, 512.  
 Responsibilities, Architects', 262.  
 Revival, Building Trade, 266.  
 Richmond Bridge, 4, 164, 392.  
 Road Surfaces, 584.
- Rome Scholarship in Sculpture, 508.  
 Royal Academy, Architecture at the, 483.  
 Royal Exchange, Manchester, 430.  
 Royal Gold Medal, Institute, 656.  
 Royal Institute of Architects of Ireland, 80.  
 R.I.B.A.: Annual Elections, 648; Competitions, Drawings for the, 113; Dinner, 627; Drawings and Designs, 179; Examination Questions, Model Answers to, 307, 330, 357, 387, 407, 439, 472, 524, 548, 572, 599; Examination Results, 104; Membership, 504; Prizes and Studentships, 84; Problems of Design, 6, 36, 73, 159, 167, 195, 222, 255, 272, 314, 320, 348, 464, 579.  
 Ruislip-Northwood, Town Planning Tangle at, 430.  
 Russia, Fire Service in, 600.
- SUBURBAN HOUSE COMPETITION, SMALL,** 459, 486.  
 St. Anne's Church, Oldham, 218.  
 St. Catherine's, Cambridge, Open Court of, 29.  
 St. George's Church, Bolton, 323.  
 St. George's Church, Thornton Hough, 564.  
 St. Paul's Cathedral, 1907, Boring at, 108; Cross, Regilding, 658; Peril of, 622; Protecting, Against Fire, 283; Structural Stability of, 59; Controversy, 58; Risking, 4.  
 St. Peter's Square, Hammersmith, 558.  
 St. Saviour's, Southwark, 342.  
 St. Vedast's Church, The London Society and, 53.  
 Sanatoria Inexpensive, 241.  
 Sandycote, Sheffield, 573.  
 Sansovino's Library, Venice, 514.  
 Sardis Excavation, 128.  
 Sash or Casement, 633.  
 Savoy Theatre, Architectural Scenery at, 85.  
 Saxon Timber Church, 155.  
 Scenery at the Savoy Theatre, Architectural, 85.  
 School-Designing Competition, and L.C.C., 312.  
 School Equipment: Its Influence on Planning, 192.  
 School, New Type of, 393.  
 Schools, Construction of, 600.  
 Science and Art, Problem of, 391.  
 Science of Illumination, 346.  
 Scott, The Late Mr. John Oldrid, 608.  
 Scottish Government Buildings, New, 58.  
 Screen, All Souls' College Chapel, Oxford, 218.  
 Sculpture on the Opera House, Paris, 90, 116, 170, 207, 255, 272, 295, 348.  
 Sculpture, Rome Scholarship in, 508.  
 Sculpture Scholarship, British School at Rome, 540.  
 Shaw Monument, Boston, Mass., 639.  
 Shaw, Norman, Memorial to, 311.  
 Sheffield, Sandycote, 573.  
 Shop, Design and Architectural Treatment of the, 463.  
 Shop-front: of Yesterday, 267; Piccadilly, 630; Problem, 318.  
 Shops, Problem of Our, 458.  
 Short Critical History of Architecture, 169.  
 Sion House, Passing of, 368.  
 Sirapite Plaster, 454.  
 Sir Thomas Graham Jackson, 51.  
 Site Problem, New Delhi, 370.  
 Sketching and Measuring, 588.  
 Skyscrapers for Berlin, 46.  
 Small Holdings, Buildings for, 560, 588, 590, 624.  
 Smith Square, Westminster, 343.  
 Smoky Chimneys, Problem of, 61.  
 Society Elections, 504.  
 Society for Protection of Ancient Buildings, 151.  
 Society of Architects' Annual Dinner, 479.  
 Societies and Institutions, 106, 128, 156, 183, 260, 288, 313, 359, 580, 602.  
 South African War Memorial, Clonmel, 638.  
 Southwark Bridge, Demolition of, 217.  
 Southwark Bridge, New, 405.  
 Stability of Brick Chimneys, 674.  
 Stables at the Château de Chantilly, 5.  
 Stafford House, 559.  
 Stafford, House at, 405.  
 Staircase, "Heathcote," Ilkley, 242.  
 "Standard" Cottage, 341.  
 Standard Plans for Working-Class Dwellings, 509.  
 State Education Building, Albany, New York, 613.  
 Stone-Cutting, of a Pendentive Dome, Construction and, 396, 433.  
 Streets, City, Lighting of, 52.  
 Structural Stability of St. Paul's Cathedral, 59.  
 Students' Drawings, 139.  
 Studio, Sir Lawrence Alma-Tadema, 636.
- Suburban House, Small, 164, 191, 219, 255, 269, 292, 392.  
 Suburban House: Competition for Elevations, 609, 662; Design for, 514.  
 Suggestions for Improvement of Modern Architecture, 206.  
 Super-Cinema, 342.
- TAYLORIAN INSTITUTION, OXFORD, DETAIL OF,** 591.  
 Technical Planning, Transience of, 215.  
 Theatre Design: Points in, 209; Trend of, 429.  
 Third Church of Christ Scientist, 280.  
 Timber: Its Uses and Characteristics, 48.  
 Tower, A Church, 73.  
 Town Hall, Godalming, 485, 508.  
 Town Planning: and Expert Advice, Official, 189; Competition, Oldham, 321; Schemes, 558; Tangle, 430.
- TRADE AND CRAFT—**  
 Airship Sheds (Hill and Smith), 108.  
 "Ironite" Waterproofing Process, 108.  
 Waterproofing Concrete and Cement-Mortar (British Ceresit Waterproofing Co.), 185.  
 Fibrous Plasterwork in Theatres (J. Tanner and Son), 185.  
 Carron Electric Cooking and Heating Appliances, 185.  
 Reinforced Concrete Doors (Chubb and Son), 185.  
 Graham Improved Electric Lifts, 185.  
 Presentation to Mr. H. H. Martyn, of Cheltenham, 185.  
 "Ozonair" and Ventilation, 283.  
 Fire Tests of "Copperlite" Glazing, 504.  
 Metal Casements (Henry Hope and Sons, Ltd.), 504.  
 "Pudlo" Waterproofing Powder, 504.  
 Pedrara Onyx, 578.  
 Caroscope, 578.  
 Roofing Tiles (Warner and Co.), 630.  
 Sanitary Appliances (Davis, Bennett and Co.), 630.  
 Fireclay Ware and Sanitary Fittings (W. R. Pickup and Co., Ltd.), 675.  
 "Hue" Barless Fire, 675.  
 "Electric" Rubber Hose, 675.  
 Tradition in English Architecture, 163.
- UNDERPINNING, POINTS IN,** 638.  
 Unhappy Hampstead, 342.  
 Union Station, Washington, 255.  
 United University Club, Pall Mall, 665.  
 University Buildings, Vancouver, New, 623.  
 Unsealed Contracts, 658.
- VANCOUVER, NEW UNIVERSITY BUILDINGS,** 523.  
 Van Eyck, Memorial to, 558.  
 Vasari, Vitality of, 137.  
 Venice of the North (Visby), 19.  
 Venice, Sansovino's Library, 514.  
 Vienna: New War Office Building, 675; Parliament House, 90.  
 Visby, 19.  
 Vitality of Vasari, 137.
- WALDORF HOTEL FACADE,** 298.  
 Wall-Coverings, Question of, 318.  
 Wall-Papers, Old and New, 360.  
 Wallingford Court, Berkshire, 590.  
 War Memorial, South African, Clonmel, 638.  
 War Office Building, Vienna, New, 675.  
 Washington, Union Station, 255.  
 Water Board Charges, 658.  
 Water Diviners, 368.  
 Water Divining Report, 508.  
 Waterloo and Paddington Stations, Enlargement of, 155.  
 Westminster: Abbey, Electric Lighting of, 498; Hospital, 534; Smith Square, 343.  
 William Flockhart: An Appreciation, 535.  
 Woolworth Building, 139.  
 Working-Class Dwellings Competition, Belfast, 285.  
 Wren's House in Botolph Lane, 431.
- YEAR BOOKS, USEFUL,** 47.



## CONCRETE AND STEEL SECTION.

**ACTION OF ACIDS, OILS, AND FATS UPON CONCRETE**, 21.  
Applications of Structural Steel, 551.  
Architectural Treatment of Reinforced Concrete, 442.

**BEAMS, SHEAR STRESS IN REINFORCED CONCRETE**, 232.  
Bills of Quantities for Reinforced Concrete, 25.  
Book Reviews: Properties and Design of Reinforced Concrete (Martin), 24; Elements of Structural Design (Thayer), 24; "Caswell's Reinforced Concrete" (Jones), 231.

#### CALCULATION OF REINFORCED CONCRETE, 651.

Concrete: Action of Acids, Oils, and Fats upon, 21; Cottages, Experimental, 130; Garden Pavilion, 26; Cracks in, Causes of, 441; in its Legal Aspects, 129; Institute, 553; Surfaces, Painting, 651; Surface Treatment of, 551; Waterproofing, 654.  
Constructional Steelwork at the Institution of Civil Engineers, 22.  
Continuous Beams in Reinforced Concrete, 654.  
Cottages, Concrete, Experimental, 130.  
Cracks in Concrete, Causes of, 441.

**DEFLECTIONS IN REINFORCED CONCRETE, TEST**, 337.  
Design, Reinforced Concrete, 23.  
Design, Structural, 23.

**ELECTROLYSIS, REINFORCED CONCRETE AND**, 338.  
Experimental Concrete Cottages, 130.  
Experimental Research, 231.

**FACTORY, REINFORCED CONCRETE**, 552.  
Fencing Posts, Reinforced Concrete, 442.  
Fire Tests with Reinforced Concrete Doors, 442.

**GRAND STAND, STEEL AND CONCRETE**, 335.

**INSTITUTION OF CIVIL ENGINEERS, CONSTRUCTIONAL STEELWORK AT**, 22.

**LEADERS: Action of Acids, Oils, and Fats, upon Concrete**, 21; Experimental Research, 231; "Popularising" Reinforced Concrete Construction, 231.

Legal Aspects, Concrete in its, 129.  
London, Steel Frame Buildings in, 234.

**MANCHESTER, REINFORCED CONCRETE WAREHOUSE**, 652.  
Manual of Reinforced Concrete, 336.

#### PAINTING CONCRETE SURFACES, 651.

Papers Read: Action of Acids, Oils, and Fats upon Concrete, 21; Bills of Quantities for Reinforced Concrete, 25; Concrete in its Legal Aspects, 129; Steel Frame Buildings in London, 234.  
Pavilion, Concrete Garden, 26.  
Paving Blocks, Tamping Machine for Making, 336.  
"Popularising" Reinforced Concrete Construction, 231.

**REINFORCED CONCRETE AND ELECTROLYSIS**, 338; Architectural Treatment of, 442; Beams, Shear Stress in, 232, 333; Bills of Quantities for, 25; Calculation of, 651; Continuous Beams in, 654; Design, 23; Doors, Fire Tests with, 442; Factory, 552; Fencing Posts, 442; in

Theatre Construction, 653; Test Deflections in, 337; Testing Apparatus for, 440; Warehouse, Manchester, 652.

#### SCHOOL CONSTRUCTION, CHEAP, AN EXAMPLE OF, 334.

Shear Stress in Reinforced Concrete Beams, 333.  
Steel and Concrete Grand Stand, 335.  
Steel Frame Buildings in London, 234.  
Steelwork, Constructional, at the Institution of Civil Engineers, 22.  
Stress, Shear, in Reinforced Concrete Beams, 333.  
Structural Design, 23.  
Structural Steel, Applications of, 551.  
Shear Stress in Reinforced Concrete Beams, 232.  
Surface Treatment of Concrete, 551.

#### TAMPING MACHINE FOR MAKING PAVING BLOCKS, 336.

Test Deflections in Reinforced Concrete, 337.  
Testing Apparatus for Reinforced Concrete, 440.  
Theatre Construction, Reinforced Concrete in, 653.

**WATERPROOFING CONCRETE**, 654.

## ILLUSTRATIONS.

**ABBEY, WESTMINSTER, LIGHTING ARRANGEMENT OF**, 498-500.  
Abersoch, Carnarvonshire, House at, 150.

Addition to Burlington Arcade, 517.  
A bany, N.Y., State Education Building, 587, 606.  
Albemarle Club, London, West Staircase, 42, 43.  
Alkrington Garden Village, Middleton, Cottage at, 44.  
All Souls' College, Oxford; Screen in Chapel, 223.  
Alma-Tadema, Late Sir Lawrence, Studio of, 636.  
American Machine Shop, Details of a Modern, 574.  
American Nation, Monument to Glory of, 189, 205.  
Art Gallery, Designs for an, 13, 67.  
Arts Building, Manchester University, 646, 647, and C.P. June 18.  
Australia, New Federal Capital City, Design for Lay Out, 88.

**BANK: LONDON CITY AND MIDLAND, LONDON, COUNTER AND GRILLE IN**, 678; National Shawmut, Boston, U.S.A., 340; of South America, British, London, 264, 269, 273; Suffolk Savings, Boston, U.S.A., 556; Interior, Showing "Pedrara" Onyx, 578.

Barber's Shop in Hotel, 154.  
Bath Development Scheme, Radium Syndicate's, 577.  
Baths of Trajan, Rome, 18.  
Belfast, First Premiated Design for Working-class Houses, 285, 286.  
Bexhill-on-Sea, "The Moorings," Cooden Beach, 438.  
Berkswell, Warwickshire, Cottages at, 126.  
Bibliothèque Ste. Geneviève, Paris, C.P., April 2.  
Bickley, Kent, House at, 355.  
Birmingham, Children's Hospital, 545.  
Birmingham, Municipal School for Jewellers and Silversmiths, 105.  
Blenheim Palace, Measured Drawings, 125.  
Blomfield, Mr. Reginald, A.R.A. (Portrait), 165.  
Bolton, St. George's Church, 316, 323.  
Boston, U.S.A.: Harvard Medical School, 491, 493; National Shawmut Bank, 340; Shaw Monument, 641; Suffolk Savings Bank, 556.  
Brick Buildings in Pentonville, 662-664, 667.

Bridge, Southwark, 217, 218, 405.  
British Bank of South America, London, 264, 269, 273.  
British Museum New Front, C.P., April 16; Isometric Drawing, 406.  
British School at Rome, 96, 97; Accepted Design for Preliminary Examination, 306; Scholarship, Sculpture for, 532, 540, 541; Section through Courtyard, 546, 547.  
Brussels, Palais de Justice, C.P., Jan. 8, 221, 290, 247.  
Building Trades' Exhibition, Olympia, General View, Opening Ceremony, Plan and Exhibits, 410-423, 446-453.  
Buildings for Small Holdings, 568, 595, 625.  
Burlington Arcade, Addition to, 517.  
Business Premises: Duke Street, London, 134; Hanover Square, London, 482, 489, 496, 497; 11, Great Marlborough Street, London, 70, 71.

#### CAMBERLEY, SURREY, "SEATON HOUSE," 98.

Cambridge, Fitzwilliam Museum, C.P., Feb. 5; Memorial Tablet to Archbishop Cranmer, Jesus College, 162.  
Cardiff, Glamorgan County Hall, C.P., March 19.  
Chamber of Deputies in Parliament House, Vienna, 82, C.P., Jan. 22.  
Château de Chantilly, France, 2; Kennels and Stables, 2, 5.  
Chelsea, Cheyne Walk, 610, 611.  
Chimney-piece in Grand Salon, Hôtel de Rochecouart, Paris, C.P., March 26.  
Cholsey, Berks, "Breach House," 669.  
Church of Christ Scientist, Third, Curzon Street, W., 278-280, C.P., March 12; St. Anne's, Royton, Oldham, 214, 227; St. George's, Bolton, 316, 323; of Christ Scientist, First, Leeds, First and Second Premiated Designs, 528, 529; St. George's, Thornton Hough, Cheshire, 564, 565; St. Mary's, Oatlands Park, near Weybridge, Tower of, 69; St. Mary's, Warwick, 154; St. Wilfrid's, Harrogate, 428.  
City Houses, Old, 116.  
Cleveland, Ohio, New Federal Building, 28, 31-33, 37, 39, 63.  
Clonmel, Ireland, South African War Memorial, 632.  
Club, United University, London: Detail of Façade, 656.  
Colombo, Grand Oriental Hotel, in Course of Construction, 53.

Colonnaded Screen, Designs for a, 173, 199, 225, 249, 275, 329.  
Competition, Small Suburban House: Plans 459-461, 486, 487, 609.  
Concrete Cottage, York, 256, 257.  
Cookham, Dene, Berkshire, "The Coppice," 254.  
Cottage, at Heale, near Salisbury, 327; at Alkrington Garden Village, Middleton, 44; Concrete, York, 256, 257.  
Cottages, at Berkswell, Warwickshire, 126; at Ruislip, 72.  
Council Chamber in London County Hall, C.P., Feb. 12, Plan 167.  
Counter and Grille, London City and Midland Bank, London, 678.  
Country Gentlemen's Association, Offices and Warehouse, Letchworth, Herts., 202, 203.  
Court House, New York, Selected Design, 582.  
Crane Scaffold, Paris, 673.  
Crematorium, Milan Cemetery, C.P., Jan. 1.

#### "DALNYREED" BARLEY, ROYSTON, HERTS., 298, 303.

Delhi, Designs for Residences, 512, 513.

#### DESIGN—

For Art Gallery, 67.  
For Fire-resisting Storage Warehouse, 356.  
For Mausoleum on a Rocky Islet in a Lake, 93, 306.  
For Nobleman's Town House, 139, 145.  
For Picture Gallery, 41.  
For Suburban House, 519-521.  
For Terminal Railway Station, 110, 114, 121.  
Tite Prize, 119, C.P., Jan. 29.  
Designs for a Colonnaded Screen, 173, 199, 225, 249, 275, 329.  
Dome, Pendentive (Diagrams showing Construction and Stone-cutting), 396-393, 433-435.  
Dome to Principal Tower, Imperial Institute; Detail, 228, 229.  
Door and Entrance, Bronze, Grand Palais, Paris, C.P., Jan. 15.  
Dove, Sheffield, House at, 593.  
Drawings, Working, by well-known Architects (See Working Drawings)  
Dublin: Municipal Buildings, 369, 370; Treasury Building, 390.

#### ETON MEMORIAL LIBRARY: DETAIL DRAWING, 596, 597.

Examination Questions, R.I.B.A., Diagrams Illustrating Answers to, 307, 308, 330, 331, 357, 358, 387, 388, 407, 408, 439, 472, 473, 524, 525, 548, 572, 573, 599.  
Examination, R.I.B.A., Final: Approved Designs (See R.I.B.A.).  
Exhibition, Building Trades, Olympia, 410-425, 446-453.

#### FACADE OF A ROYAL PALACE, DESIGN FOR, C.P., Jan. 29.

Farnham, Surrey, House at, 543; Knight's Bank, Castle Street, 56.  
Federal Building, New, Cleveland, Ohio, 28, 31, 33, 37, 39, 63.  
Federal Capital City, Australia, Design for Lay Out of, 88.  
"Field Day" with Theodolites, 677.  
First Church of Christ Scientist, Leeds: First and Second Premiated Designs, 528, 529.  
Fitzwilliam Museum, Cambridge: End View of Façade, C.P., Feb. 5.  
Flockhart, The Late Mr. William (Portrait), 409.  
Forest Row, Sussex, "The Old Well Cottage," 281.  
Foundations of St. Paul's Cathedral, 622.

#### CARE DU NORD, PARIS, C.P., April 23.

Gidea Park, Romford, Houses in Heath Drive, 204.  
Glamorgan County Hall, Cardiff, C.P., March 19.  
Goldsmiths' Hall, London, 612.  
Grand Oriental Hotel, Colombo, in Course of Construction, 53.  
Grand Palais, Paris: Bronze Door and Entrance at Corner, C.P., Jan. 15; Detail of Sculpture, 465.  
Great Marlow, Marlow Place, 197.

#### HALL, GOLDSMITHS', LONDON, 612.

Hall and Staircase, 40, Upper Grosvenor Street, London, 620, 621.  
Hampstead Garden Suburb, Houses in Erskine Hill, 15.  
Hampstead, Houses at, 379.  
Harrogate, St. Wilfrid's Church, 428.  
Harvard Medical School, Boston, U.S.A., 491, 493.  
Headley, Surrey, "Heath Lodge," 495.  
Heale, near Salisbury, Cottage at, 327.  
"Heathcote," Ilkley, Yorks, Staircase, 238.



His Majesty's Theatre, Manchester, 366, 371, 375, 377, 380, C.P., April 9.  
Hospital: for Children, Birmingham, 545; London Homœopathic, 176, 177.  
Hospitals, Comparison of British, Continental, and American, 252, 253.  
Hotel: Barber's Shop in, 154; de Rochechouart, Paris; Details from Grand Salon, 325; Chimney-piece in Grand Salon, C.P., March 26; Mayfair, London, 615, 617, 626; Prince Edward, Brandon, Manitoba, 138; Waldorf, London: Detail of Façade, 290.

## HOUSE—

At Abersoch, Carnarvonshire, 1.  
At Bickley, Kent, 355.  
At Cholsey, Berks, 669.  
At Dore, Sheffield, 593.  
At Farnham, Surrey, 543.  
At Ilkley, Yorks, C.P., April 30.  
At Khartoum, Egypt, 65.  
At Kingswood, Surrey, C.P., May 7.  
At Reigate, 353; Plan, 361.  
At Stafford, 401.  
At Westbury, L.I., 585.  
Design for Suburban, 519-521.  
For R. Barclay, Esq., 619.  
"Heath Lodge," Headley, Surrey, 495.  
"Hengrove," St. Leonards, Wendover, Bucks, 645.  
In Botolph Lane, Wren's, 431.  
In the Grand Duchy of Luxembourg, C.P., May 28.  
"Lombarden," Limsfield, Surrey, 467.  
"Moorings," Cooden Beach, Bexhill-on-Sea, 438.  
"Seaton House," Camberley, Surrey, 98.  
Stafford, 559-561, 567, 569.

## HOUSES—

At Hampstead, 379.  
For Small Holdings, 595, 625.  
In the City, to be sold by Auction, 116.  
In Erskine Hill, Hampstead Garden Suburb, 15.  
In Heath Drive, Gidea Park, 204.  
In Smith Square, Westminster, 349.  
"South Hill," Hook Heath, Woking, 230.

## IMPERIAL INSTITUTE, DETAIL OF DOME, PRINCIPAL TOWER, 228, 229.

Institution of Electrical Engineers, London: Detail of Lecture Hall, 456.  
Isometric Drawing of British Museum New Front, 406.

## JACKSON, SIR THOMAS GRAHAM (PORTRAIT), 51.

## KENNELS, CHATEAU DE CHANTILLY, FRANCE, ENTRANCE TO, 2.

Khartoum, Egypt, House at, 65.  
Kingswood, Surrey, House at, C.P., May 7.  
King's College Hospital: Pathological Block, 670, 671.  
Knights Bank, Castle Street, Farnham, Surrey, 56.

## LA BACATELLE, PARIS, 635, 643.

Lamp Standard on Southwark Bridge, 217.  
Lavenham, Suffolk, Old Houses at, 106.  
Lecture Hall, Institution of Electrical Engineers, London, 456.  
Leeds, First Church of Christ Scientist; First and Second Premiated Designs, 528, 529.  
Letchworth, Herts., Offices and Warehouse for the Country Gentlemen's Association, Ltd., 202, 203.  
Library: Public, New York City, 586; Sansovino's, Venice, 506.  
Limsfield, Surrey, "Lombarden," 467.  
Liverpool: Repertory Theatre, C.P., Feb. 19, 207; Scheme for Development of Pierhead, C.P., June 11.  
L.G.B. Standard Plans for Working-class Dwellings, 509.  
London County Hall, Council Chamber in the, C.P., Feb. 12.  
London Homœopathic Hospital, 176, 177.  
Loose, near Maidstone, School at, 393, 395.

## MACHINE SHOP, DETAILS OF A MODERN AMERICAN, 574.

Manchester, New Theatre, 366, 371, 375, 377, 380, C.P., April 9; Univer-

sity, New Arts Building, 646, 647, and C.P., June 18.  
Manice Building, New York, Detail of Entrance, 148, 149.  
Marlow Place, Great Marlow, 197.  
Mausoleum on a Rocky Islet, Designs for a, 93, 306.  
Mausoleums, Modern American, 437.  
Mayfair Hotel, London, 615, 617, 626.  
Memorial, South African War, Clonmel, Ireland, 632; Tablet to Archbishop Cranmer, Jesus College, Cambridge, 162.  
Menu Card, R.I.B.A. Dinner, 627.  
Metropolitan Museum, New York, Central Hall, 11.  
Milan Cemetery, Crematorium, C.P., Jan. 1.  
Milan, Musocco Cemetery Entrance, 9.  
Mill Hill, Middlesex, "The Grove," 178.  
Modern Domestic Architecture (See Houses).  
Modern Small Houses (See Houses).  
Monument, Shaw, Boston, Mass, 641; to Glory of the American Nation, 188, 205; to Glory of the French Republic, Paris, 515.  
Municipal Buildings, Dublin, 369, 370.  
Musocco Cemetery, Milan, Entrance to, 9.

## NATIONAL SHAUMUT BANK, BOSTON, U.S.A., 340.

New Theatre, Manchester, 366, 371, 375, 377, 380, C.P., April 9.

## NEW YORK—

City Public Library, 586.  
Court House, Selected Design, 582.  
House in West 54th Street, Entrance, 304, 305.  
Manice Building, Detail of Entrance, 148, 149.  
Metropolitan Museum, 11.  
Woolworth Buildings, 143.

## OLD HOUSES AT LAVENHAM, SUFFOLK, 106.

"Old Well Cottage," Forest Row, Sussex, 281.  
Oldham: Town-Planning Competition: First Premiated Design, 321, 322.

Olympic Theatre, Vicenza, 86, 91.  
Opera House, Paris, Details of Sculpture, 95, 123, 147, 175, 201, C.P., Feb. 26, 251, 277, 301, 351, 403.  
Oxford, Lady Margaret Hall, C.P., June 25; Screen in Chapel of All Souls' College, 223; Taylorian Institution, Detail, 591.

## PALAIS DE JUSTICE, BRUSSELS, GRAND STAIRCASE, C.P., Jan. 8;

Grand Hall of Audience in Court of Cassation, 171; Colonnade on Principal Façade, 221; Detail of Vestibule, with Bust of the Architect, J. Poelaert, 247; Detail of Façade, 290.

Paris, Bibliothèque Ste. Geneviève, C.P., April 2; Crane Scaffold, 673; Gare du Nord, C.P., April 23; Grand Palais, Detail of Sculpture, 465; Grand Palais, Bronze Door and Entrance at Corner, C.P., Jan. 15; Hôtel de Rochechouart, Details from Grand Salon, 325; Chimney-piece in Grand Salon, C.P., March 26; La Bagatelle, 635, 643; Monument to the Glory of the French Republic, 515; Opera House, Details of Sculpture, 95, 123, 147, 175, 201, C.P., Feb. 26, 251, 277, 301, 351, 403.

Parliament House, Vienna, Chamber of Deputies in, 82, C.P., Jan. 22.  
"Pedrara" Onyx in Bank Interior, 578.

Pendentive Dome Construction, 396-398, 433-435.  
Pentonville, Brick Building in, 612-664, 667.

Perth, Western Australia, St. George's House, 16, 17.

Piccadilly Shop-Front, 630.

Pierhead, Liverpool, Scheme for Development of, C.P., June 11.

Piranesi, Examples from, 1, 27, 56, 81, 109, 133, 161, 187, 213, 237, 263, 289, 315, 339, 365, 389, 427, 456, 482, 505, 531, 555, 581, 605, 631, 655.

Plans: Small Suburban House Competition, 459-461, 486, 487, 609; for Working-Class Dwellings, L.G.B. Standard, 509.

Plate, Centre: Crematorium, Milan Cemetery, Jan. 1; Grand Staircase, Palais de Justice, Brussels, J. Poelaert, Architect, Jan. 8; Bronze Door and Entrance at Corner of Grand Palais, Paris, Jan. 15; Chamber of Deputies in the Parliament House, Vienna, Jan. 22; Design for the Façade of a Royal Palace (by Cyril A.

Farey), Jan. 29; Fitzwilliam Museum, Cambridge: End View of Façade, Feb. 5; Council Chamber in the London County Hall, Ralph Knott, Architect, Feb. 12; Repertory Theatre, Liverpool, Professor S. D. Adishead, F.R.I.B.A., Architect, Feb. 19; Detail of Sculpture on Opera House, Paris, Charles Garnier, Architect, Feb. 26; Union Station, Washington, U.S.A., D. H. Burnham and Co., Architects, March 5; Third Church of Christ Scientist, Curzon Street, W., Lancaster and Rickards, F.R.I.B.A., Architects, March 12; Glamorgan County Hall, Cardiff, E. Vincent Harris and Thomas A. Moodie, A.A.R.I.B.A., Architects, March 19; Chimney-piece in Grand Salon, Hôtel de Rochechouart, Paris, March 26; Bibliothèque Ste. Geneviève, Paris, Henry Labrousse, Architect, April 2; New Theatre Manchester, Horace Farquharson and Richardson and Gill, Associated Architects, April 9; British Museum Extension, New Façade, John J. Burnet, LL.D., A.R.S.A., Architect, April 16; Gare du Nord, Paris, Hittorf, Architect, April 23; House at Ilkley, Yorks, Edwin L. Lutyens, A.R.A., F.R.I.B.A., Architect, April 30; House at Kingswood, Surrey, Ernest Newton, A.R.A., F.R.I.B.A., Architect, May 7; Scheme for Improvement of South London and the Thames, C. E. Mallows, Architect, May 14; New Building for Faculty of Arts, Liverpool University, Briggs, Wolstenholme, and Thornely, and F. W. Simon, F.R.I.B.A., Architects, May 21; House in the Grand Duchy of Luxembourg, Ernest Newton, A.R.A., F.R.I.B.A., Architect, May 28; Wallingford Court, Berkshire, Detmar Blow and Fernand Billerey, Architects, June 4; Scheme for Development of Pierhead, Liverpool, June 11; New Arts Building, Manchester University, Percy Scott Worthington, M.A., F.R.I.B.A., Architect, June 18; Lady Margaret Hall, Oxford, Reginald Blomfield, A.R.A., Architect, June 25.

Portable School, Ellington, Northumberland, 563.

Portraits: Blomfield, Professor Reginald, 165; Flockhart, The late Mr. William, 409; Jackson, Sir Thomas Graham, 51; Scott, The late Mr. John Oldrid, 608.

Premises, Business, Hanover Square, London, 482, 489, 496, 497.

Prince Edward Hotel, Brandon, Manitoba, 138.

## QUADRANT, RECENT STREET, 294, 295.

## RADIUM SYNDICATE'S DEVELOPMENT SCHEME, BATH, 577.

Regent Street Quadrant, 294, 295.

Reigate, House at, 353.

Repertory Theatre, Liverpool, C.P., Feb. 19, 207.

Residences, Delhi, Designs for, 512, 513.

R.I.B.A.: Dinner Menu Card, 627; Examination Questions, Diagrams Illustrating Answers to, 307, 308, 330, 331, 357, 358, 387, 388, 407, 408, 439, 472, 473, 524, 525, 548, 572, 573, 599; Final Examination: Approved Designs for Art Gallery, 13, 67; for Picture Gallery, 41; for Colonnaded Screen, 173, 199, 225, 249, 275, 329; for Fire-Resisting Warehouse, 356, 469.

Rome, Baths of Trajan, 18; British School at, Detail of End Projections, 96, 97; British School at, Section through Courtyard, 546, 547.

Royton, Oldham, St. Anne's Church, 214, 227.

Ruislip, Cottages at, 72.

## ST. ANNE'S CHURCH, ROYTON, OLDHAM, 214, 227.

St. George's Church, Bolton, 316, 323.

St. George's Church, Thornton

Hough, Cheshire, 564, 565.

St. George's House, Perth, Western Australia, 16, 17.

St. Mary's Church, Otlands Park, near Weybridge, Tower, 69.

St. Mary's Church, Warwick, 154.

St. Paul's Cathedral, Detail View of Buttresses to Dome, 59; Foundations of, 622; Taking Borings at, 108.

St. Wilfrid's Church, Harrogate, 428.

Sandygate, Sheffield, Plan of, 573.

Savoy Theatre, Architectural Scenery to "Twelfth Night," 85.

Scheme for Improvement of South London and the Thames, C.P., May 14.

School: at Loose, near Maidstone,

393-395; for Jewellers and Silversmiths, Birmingham, 105; Portable, Ellington, Northumberland, 563.  
Scott, The late Mr. John Oldrid (Portrait), 608.  
Screen in the Chapel of All Souls' College, Oxford, 223.  
Sculpture for British School at Rome Scholarship, 512, 540, 541.  
Sculpture on Opera House, Paris, Details of, 95, 123, 147, 175, 201, C.P., Feb. 26, 251, 277, 301, 351, 403.  
"Seaton House," Camberley, Surrey, 98.

Shaw Monument, Boston, Mass., 641.  
Sheffield, Sandygate, Plan of Estate, 573.

Shop-Front, Piccadilly, 630.

Skittle Alley, 209.

Small Holdings, Buildings for, 588, 595, 625.

Smith Square, Westminster, 343-345, 349.

Soane Designs, 110, 114, 121.

South African War, Memorial, Clonmel, Ireland, 632.

"South Hill," Hook Heath, Woking, 230.

Southwark Bridge, 217, 218, 405.

Stables at the Château de Chantilly, France, 5.

Stafford, House at, 401.

Stafford House, 559-561, 567, 569.

Staircase: Albermarle Club, Dover Street, W., 42, 43; Grand Palais de Justice, Brussels, C.P., Jan. 8; "Heathcote," Ilkley, Yorks, 238.

State Education Building, Albany, N.Y., 587, 606.

Studio of Late Sir Lawrence Alma-Tadema, 636.

## TAYLORIAN INSTITUTION, OXFORD, DETAIL, 591.

Theatre, New, Manchester, 366, 371, 375, 377, 380, C.P., April 9; Olympic, Vicenza, 86, 91; Repertory, Liverpool, C.P., Feb. 19, 207; Savoy, Architectural Scenery to "Twelfth Night," 85.

Theodolites, "Field Day" with, 677.

Third Church of Christ Scientist, London, 278-280, C.P., March 12.

Title Prize Design, 119, C.P., Jan. 29.

Town House, Design for a, 139, 145.

Town-Planning Competition, Oldham: First-Premiated Design, 321, 322.

Treasury Building, Dublin, 390.

## UNION STATION, WASHINGTON, C.P., March 5; Plan, 258.

United University Club, London: Detail of Façade, 656.

University Buildings, Vancouver, British Columbia, 523.

## VANCOUVER, BRITISH COLUMBIA, UNIVERSITY BUILDINGS, 523.

Venice, Sansovino's Library, 506.

Vicenza, Olympic Theatre, 86, 91.

Vienna, Chamber of Deputies in Parliament House, 82, C.P., Jan. 22.

## WALDORF HOTEL, LONDON, DETAIL OF FAÇADE, 290.

Wallingford Court, Berkshire, C.P., June 4.

Warehouse, Fire-Resisting (R.I.B.A. Testimonies of Study) Approved Design, 356, 469.

Warwick, St. Mary's Church, 154.

Washington, U.S.A., Union Station, C.P., March 5; Plan, 258.

Westbury, L.I., House at, 585.

Westminster Abbey, Lighting Arrangement of, 498-500.

Westminster, Smith Square, 343-345, 349.

Woking, "South Hill," Hook Heath, 230.

Woolworth Building, New York, 143.

Working Drawings by Well-known Architects: St. George's House, Perth, Western Australia (Warwick and Hall, F.R.I.B.A., Architects), 16, 17; West Staircase, Albermarle Club, Dover Street, W. (Smith and Brewer, F.R.I.B.A., Architects), 42, 43; Business Premises, 11, Great Marlborough Street, London (R. Frank Atkinson, F.R.I.B.A., Architect), 70, 71; British School at Rome, Detail of Façade (Edwin L. Lutyens, A.R.A., F.R.I.B.A., Architect), 96, 97; Detail of Entrance to the Manice Building, New York (Wallis and Goodwillie, Architects), 148, 149; London Homœopathic Hospital (Edwin T. Hall, Architect), 176, 177; Offices and Warehouse for the County Gentlemen's Association, Ltd. (B. F. Johnson, Architect), 202, 203; Imperial Institute; Detail of Dome to Principal Tower



(T. E. Colcutt, F.R.I.B.A., Architect), 228, 229; Third Church of Christ Scientist, Curzon Street, W. (Lanchester and Rickards, F.F.R.I.B.A., Architects), 278, 279; Entrance to House in West 54th Street, New York (McKim, Mead, and White, Architects), 304, 305; House at Bickley, Kent (C. H. B. Quennell, F.R.I.B.A., Architect),

354, 355; New Theatre, Manchester (Farquharson, Richardson, and Gill, Architects), 380, 381; Detail of Entrance to Ferguson Library, Stamford, Conn., U.S.A. (Tracy, Swartwout, and Litchfield, Architects), 470, 471; New Business Premises, Hanover Square, London (John Belcher, R.A., and J. J. Joass, F.R.I.B.A., Architects), 496,

497; Section through Courtyard, British School at Rome (Edwin L. Lutyens, A.R.A., F.R.I.B.A., Architect), 546, 547; Rebuilding, 43-46; Southampton Buildings, London, 570, 571; Detail of Eton Memorial Library (L. K. Hall and S. K. Greenslade, F.R.I.B.A., Architects), 596, 597; Hall and Staircase, 40, Grosvenor Street, London (Re-

ginald Blomfield, A.R.A., Architect), 620, 621; Pathological Department, King's College Hospital (William A. Pite, F.R.I.B.A., Architect), 670, 671. Wren's House in Botolph Lane, 431.

**YORK, EXPERIMENTAL CONCRETE COTTAGE**, 256, 257.

## ILLUSTRATIONS, CONCRETE AND STEEL SECTION.

**APPARATUS, TESTING, WESTMINSTER TECHNICAL INSTITUTE**, 440.

**BROOKLYN, NEW YORK, STEEL AND CONCRETE GRAND STAND**, 335.

**CONCRETE FOUNTAIN, HOBOKEN PARK, N.J.**, 26.  
Cottages, Concrete, Merthyr, 130, 132.

**FACTORY, REINFORCED CON-**

**CRETE, CLAPHAM**, 552, 553.  
Fountain, Concrete, Detail of, Hoboken Park, 26.

**GRAND STAND, STEEL AND CONCRETE, BROOKLYN, NEW YORK**, 335.

**INSTITUTION OF CIVIL ENGINEERS STEELWORK IN NEW BUILDING FOR**, 22-24.

**MACHINE FOR MAKING PAVING BLOCKS, TAMPING**, 336.

Manchester, Reinforced Concrete Warehouse, 652, 653.  
Merthyr, Concrete Cottages, 130-132.

**PAVILION, CONCRETE, IN HOBOKEN PARK, N.J.**, 26.  
Posts, Reinforced Concrete, Palmer's Green, London, 442.

**REINFORCED CONCRETE POSTS, PALMERS GREEN, LONDON**, 442; to Warehouse, Manchester, 652, 653; Factory, Clapham, 552, 553.

**SCHOOL, PROPOSED COUNCIL**, 334.  
Steelwork in New Building for Institution of Civil Engineers, Westminster, 22-24.

**TAMPING MACHINE FOR MAKING PAVING BLOCKS**, 336.  
Testing Apparatus, Westminster Technical Institute, 440.

**WAREHOUSE, REINFORCED CONCRETE, MANCHESTER**, 652, 653.  
Westminster Technical Institute, Testing Apparatus, 440.

## ARTISTS AND AUTHORS.

**ADAM, DAVID A.**, 461.  
Adams, H. Percy, and Charles Holden, 456.  
Adshead, Stanley D., F.R.I.B.A., C.P., Feb. 19, 207, 535.  
Alma-Tadema, late Sir Lawrence, 636.  
Armstrong, C. M. C., 126.  
Atkinson, R. Frank, F.R.I.B.A., 70, 71.  
Aubert, J., 2, 5.

**BAKER, F. S.**, 115.  
Ball, W. Valentine, M.A., 45.  
Barnish, F. J., 461.  
Belanger, 635, 643.  
Belcher, John, R.A., and J. J. Joass, F.R.I.B.A., 482, 489, 496, 497, 577.  
Billerey, Fernand, 319.  
Blashfield, Edwin H., 39.  
Blomfield, Reginald, A.R.A., 165, 620, 621, 656, C.P., June 25.  
Blow, Detmar, F.R.I.B.A., and Fernand Billerey, 327, 349, C.P., June 4.  
Bow, Douglas Scott, 523.  
Boyd, James, S., 396, 433.  
Bradshaw, H. C., 93, 114, 121, C.P., June 11.  
Briggs, Wolstenholme, and Thornely, and F. W. Simon, F.F.R.I.B.A., C.P., May 21.  
Brownword, 541.  
Brunner, Arnold W., 31-33, 37, 39, 63.  
Bucknell, L. H., 139, 145.  
Burnet, John J., LL.D., A.R.S.A., 406, C.P., April 16.  
Burnham, D. H., and Company, C.P., March 5, 258.  
Burrroughs, L., 40, 613.  
Bussell, R. Claude, 575.  
Bylander, S., M.C.I., 234.

**CANE, HAROLD**, 674.  
Carrère and Hastings, 586.  
Chillingworth and Levie, 285, 286.  
Clark, Walter L., 306.  
Cleland and Hayward, 487.  
Cockrell, C. R., 591.  
Cole, E. R. F., C.P., June 11.  
Colcutt, T. E., F.R.I.B.A., 228, 229.  
Cossins, Peacock, and Bewlay, 105.  
Crownshield, Frederic, 63.  
Curtis, Robert, 552.

**DAWBER, E. CUY, F.R.I.B.A.**, 495.  
Déglane, H., C.P., Jan. 15.  
Despradelle, C.-D., 188, 205.  
Dixon, A. S., 356.

Dunn and Watson, F.F.R.I.B.A., 264, 269, 273.

**FALKNER, HAROLD**, 56, 543.  
Farey, Cyril A., 119, C.P., Jan. 29.  
Farquharson, H., and Richardson and Gill, 366, 371, 375, 377, 380, C.P., April 9.  
Field, Horace, F.R.I.B.A., 230.  
Field, Horace, F.R.I.B.A., and Evelyn Simmons, 349.  
Fitton, Thos. A., 44.  
Flockhart, The late William, 535-537.  
Francis, G. E., 307, 330, 357, 387, 407, 439, 472, 524, 548, 572, 599.  
French, Daniel C., 28.

**GADD, W. LAWRENCE, F.I.C., M.C.I.**, 21.  
Garnier, Charles, C.P., Feb. 26.  
Gee, Ernest, 199.  
George, Sir Ernest, A.R.A., 405.  
Gibbs, Flockton, and Teather, 573.  
Gibson, J. S., F.R.I.B.A., 528.  
Gilbert, Cass, 143, 437, 556.  
Goodenough, F. W., 287, 384.  
Goodwin, Sidney H., Licentiate R.I.B.A., 487.  
Green, W. Curtis, F.R.I.B.A., 179.  
Gunn, Edwin, A.R.I.B.A., 61, 72.

**HALL, EDWIN T., F.R.I.B.A.**, 176-177.  
Hall, J. Compton, F.R.I.B.A., 69.  
Hall, Laurence K., and Sidney K. Greenslade, F.F.R.I.B.A., 596, 597.  
Hamp, Stanley, A.R.I.B.A., 178.  
Hansen, Th., 82, C.P., Jan. 22.  
Harris, E. Vincent, and Thomas A. Moodie, A.A.R.I.B.A., 134, C.P., March 19.  
Hastings, Thomas, 585.  
Hittorf, C.P., April 23.  
Horder, P. Morley, F.R.I.B.A., 353, 645.

**IVORY, THOMAS**, 390.

**JACGER, C. S.**, 540, 541.  
Jenkins, F., 519-521.  
Jennings, Arthur Seymour, F.I.B.D., 358.  
Johnston, R. F., 202, 203.  
Jolley, L. B. W., B.A. Cantab., A.M.I.C.E., 346.  
Jones, Ronald P., M.A., 204.  
Joy, Albert Bruce, 162.

**KALTENBACH, A. F.**, 225.  
Knott, Ralph, C.P., Feb. 12.

**LABROUSTE, HENRI**, C.P., April 2.  
Lanchester, H. V., F.R.I.B.A., 463.  
Lanchester and Rickards, F.F.R.I.B.A., 278-280, C.P., March 12.  
Lawrence, F. O., 67.  
Leatherdale, F. H., 48.  
Ledward, Gilbert, 532, 540.  
Lethaby, W. E., F.R.I.B.A., 206, 442.  
Lowell, Guy, 582.  
Lutyens, Edwin L., A.R.A., F.R.I.B.A., 15, 96, 97, 238, C.P., April 30, 546, 547.  
Lyon, T. H., 254.

**MACARTNEY, MERVYN E., F.S.A., F.R.I.B.A.**, 467.  
Mackenzie, A. Marshall, A.R.S.A., F.R.I.B.A., and Son, 290.  
Mallows, C. E., F.R.I.B.A., C.P., May 14.  
Martin, F. W., 545.  
Mason, Harold C., 124, 125, 506.  
McDonnell and Reid, 369, 370.  
McKim, Mead, and White, 304, 305, 641.  
Miller, B.A., C.P., June 11.  
Moira, Gerald, 627.  
Moore, Temple, F.R.I.B.A., 214, 227, 428.  
Munby, Alan E., M.A., F.R.I.B.A., 192.  
Mussmann, E., B.A., 173.

**NEWBOULT, B.**, 41.  
Newton, Ernest, A.R.A., F.R.I.B.A., C.P.'s May 7, 28, 619.

**ORPEN, R. CAULFIELD, R.H.A., AND P. L. DICKINSON**, 632.

**PALMER, HORNBOSTEL, AND JONES**, 587, 606.  
Pease, Alex., A.R.I.B.A., 461.  
Pite, Beresford, F.R.I.B.A., 517.  
Pite, William A., F.R.I.B.A., 670, 671.  
Poelaert, J., C.P., Jan. 8, 171, 221, 247, 290.  
Polk, Willis, and Co., 436.  
Porter, Horace, A.R.I.B.A., 19.  
Poulter, H. R. and B. A., 98.  
Powell, E. Turner, F.R.I.B.A., 281.  
Pratt and Ross, 138.

**QUENNELL, C. H. B., F.R.I.B.A.**, 354, 355, 379.

**RAMSEY, STANLEY C.**, 114.  
Richardson and Gill, 65, 162, 571, 615, 617, 626.  
Richardson and Gill, H. Farquharson and, 366, 371, 375, 377, 380, C.P., April 9.  
Ripley, C., 249.  
Robinson, W. H., 393-395.

**SCAIFE, WILLIAM W.**, 460.  
Schofield, W. Peel, A.R.I.B.A., 528.  
Sharpe and Thompson, 523.  
Shaw, Norman, 56.  
Sheffield, Noel D., M.S.A., 360.  
Shibley, A. R., 67.  
Shibley, Reginald, 469.  
Shipley, Rutan, and Coolidge, 491, 493.  
Simpson, J. L., 316, 323, 564, 565.  
Smith and Brewer, F.F.R.I.B.A., 42, 43.  
Snell, H. Saxon, F.R.I.B.A., F.R.S.A., 243.  
Stevens, Charles, F.R.I.B.A., 53.  
Stevens and Co., Charles F., 512, 513.  
Swain, W. F., 256.  
Swash, Frank S., A.R.I.B.A., 459, 609.

**THACKERAY, F.**, 130, 132.  
Theobald, John M., F.S.I., M.C.I., 25.  
Thompson, W. Harding, 41, 329.  
Thorpe, F., 321, 322.  
Tracy, Swartwout, and Litchfield, 470, 471.  
Tubbs, Cyril B. and A. A. Messer, 438.

**WAKEFIELD, B., LICENTiate R.I.B.A.**, 461.  
Waldram, Percy J., F.S.I., M.C.I., 231, 333, 337.  
Wallis and Goodwillie, 149.  
Wands, William, 150.  
Warren, Edward, F.S.A., F.R.I.B.A., 669.  
Warwick and Hall, A.A.R.I.B.A., 16, 17.  
Weeks, B. W., 275.  
Whinney, T. B., F.R.I.B.A., 678.  
Whitelaw, James W., 110, 114.  
Wilkinson, Leslie, A.R.I.B.A., 460.  
Willcox, F. W., and H. C. Wheat, 154.  
Winslow and Biglow, 340.  
Wood, Edgar, F.R.I.B.A., 298, 303, 401, 593.  
Worthington, Percy Scott, F.S.A., F.R.I.B.A., 639, 646, 647, C.P., June 18.



# THE ARCHITECTS' & BUILDERS' JOURNAL.

Wednesday, January 1, 1913.

Volume XXXVII. No. 938.

No. 14.



*(From Piranesi.)*





ENTRANCE TO THE KENNELS, CHÂTEAU DE CHANTILLY, FRANCE. J. AUBERT, ARCHITECT.

(See page 5.)



# THE ARCHITECTS' & BUILDERS' JOURNAL.

JANUARY 1, 1913.

CAXTON HOUSE, WESTMINSTER.

VOLUME 37. No. 938

## Cosmopolitan Architecture.

ON the first day of the New Year it is natural to take stock of the present state of architectural thought both in England and abroad. The new century is still young, and if anything like the present rate of material progress, as evidenced from trade returns all over the world, is maintained, the twentieth century promises to offer opportunities for architectural display unequalled since the days of Hadrian and the Antonine Emperors. The concentration of power in the hands of the leading States of Europe, which, apart from the development of American resources, was the most striking feature of the last century, has led to a corresponding growth and expression of power in the capital cities of the world, while the increased means of communication and trade between them has lessened their national differences. To-day a civilised member of any European State will find himself at home and in almost familiar surroundings in the capital of any other State. A design for a new railway station, a new store, a new apartment house, if suitable to Paris would to-day be equally suitable to Brussels, Berlin, Vienna, or St. Petersburg. We alone in Europe retain to a great extent our insular characteristics; but even with us our architecture is becoming more cosmopolitan. A Selfridge store, an Automobile Club, a Ritz Hotel are absorbed into our streets, or, rather, master our streets for us, with extraordinary ease. The vast corporations through which trade is now being carried on all tend in the same direction. A great business concern like the Canadian Pacific Railway, which now encircles the whole world with its activities, becomes less and less conscious in its building works of local or even national characteristics. Finance to-day knows no international barriers, and our commercial architecture, which is bound in time to express this same cosmopolitanism, can know none either.

If, then, the keynote of the new century is going to be, as seems inevitable, a further breaking down of national characteristics in architecture, and their replacement by an architecture expressing a broader culture and a wider civilisation, whence is this new architecture to find its source and inspiration? We in England during the last fifty years have been so much the sport of fashion in our architecture, so given to reviving particular past periods and epochs, that we are hardly conscious how far in this respect we have differed from our neighbours. Germany alone has shown any similar want of faith or similar disposition to experiment with strange gods. Her continued dalliance with the "art nouveau" is a case in point. Racial character no doubt affords the explanation why the Latin nations have maintained a more consistent hold on classical tradition than the Teutonic. It is America, however—Anglo-Saxon in name, but, in fact, an epitome of all the European nations—which has been the country to achieve the finest synthesis of the classical tradition since Roman times. The future historian of the architecture of the twentieth century will pro-

bably discover that America in her great new buildings at the beginning of the century, such as the Pennsylvania Railway Station, the Albany Education Building, and the rebuilt National City Bank in New York, was the first to return to the use of Greek and Roman motifs in their original purity of form. He will show that they used these motifs with a greater simplicity and directness than had been done at any previous date, and the extraordinary thing he will have further to chronicle will be that the buildings so formed gave at the same time the closest possible satisfaction to America's needs, both spiritual and material. He will show that in none of these buildings is there an architectural display that did not arise out of or practical necessity, using that term in its largest sense, and that the result was a series of the most monumental buildings in existence up to that date. He will explain how these buildings were achieved on the very highest plane of workmanship with no sacrifice of delicacy to strength, no archaic use of material, that they were built in none but the finest cut stone and marble, steel and bronze.

It seems therefore that America has already shown the way, and that the new architecture of the new century—an architecture of the whole Western world rather than an architecture of any particular nation—will be a new and closer synthesis of the old classical models. Once more we shall return to the fountain head for our readings and not be content with the gloss added by any particular country at any particular time. No doubt in England we shall find this a little difficult. We are too prone to think that because Inigo Jones or Wren made great and noble works of art for the time they lived in, their variant of the classical tradition must satisfy us for all time, and in spite of all later knowledge. We cannot but see that St. Paul's Cathedral, great and marvellous as it is in conception, in detail is a provincial church in comparison with the much smaller Pantheon at Rome; or that Inigo Jones's Banqueting Hall—"the finest piece of Palladianism in England"—is local and parochial in its significance compared to a Græco-Roman provincial building like the Maison Carré at Nîmes. We have so long sworn by Palladio and his English imitators that we forget that Palladianism is itself a gloss, a local interpretation of the works of antiquity. For these reasons therefore we welcome very sincerely Mr. William Archer's contribution to the Delhi controversy, which we publish in another column. The great dramatic critic has seen and stated, more clearly than any architect has done so far, the reasons why the motifs of Greek architecture should be the motifs of the buildings for the new Delhi. For similar reasons we deplore the new building which Mr. Lutyens is erecting at Rome for the British School. The clever adaptation of a portion of St. Paul's Cathedral, which was suitable to an exhibition building, when changed from plaster to stone and made a permanent structure to house a permanent educational institution, will look, we fear, with its steep pediment and coarse Wren



detail, provincial if not barbaric among the palaces and villas of Rome.

If the general course of architecture all over the world is, as we suppose, now setting towards a more refined and truer synthesis of Greek and Roman motifs than at any time in the history of the stream started at the Renaissance, we of all nations, with our insular prejudices and our haphazard methods of training, have the greatest leeway to make up.

C. H. R.

#### Risking St. Paul's.

THE facts concerning the stability of St. Paul's Cathedral and the grave dangers that would be incurred if the projected tramway tunnel were carried out have already been set out in our columns, but while the scheme of the London County Council yet remains a possible live force we would urge again the case so convincingly set forth by Mr. Macartney and by Canon Alexander. This tramway is no life-and-death affair, and the projected route for it is not the only possible one; while the easy assurances which are given on behalf of the Council only serve to emphasise the disregard in which the finest building in London is held by those in authority. We should not be surprised next to hear the engineers say, "After all, what if St. Paul's should fall down?" as though the building were just one out of a score of equal worth, as though we could easily set up another. But it is quite certain that, with the aid of the newspapers, public opinion is growing strongly antagonistic to the tramway scheme; and rightly too. St. Paul's is much too grand a treasure, both historically and architecturally, to risk for the sake of a tramway tunnel. We hope therefore that by the time the matter comes up before the Council for final settlement—on January 22nd—there will be sufficient opposition aroused to annul this ill-starred scheme. The water-bearing strata on which the Cathedral rests are the dangerous factor in the situation. Left undisturbed, the great building will remain stable; but no one can say what might happen if the water were drawn off as the result of tunneling. It is admitted on all sides that there is a great element of risk, and in the case of a national possession like St. Paul's no such risk should be considered for a moment—especially when a mere tramway tunnel is the alternative. With the growing motor-bus traffic of the past year or two the once glowing future of the tramway has become disturbingly pale, and in the next few years, maybe, the conditions will be still more against the tramway. So much the greater reason, therefore, that St. Paul's should not be risked for this present undertaking.

#### Competitions and Registration.

THE Warrington Education Committee, like most other bodies of similar constitution, has no very clear understanding of its correct attitude towards architects. That, at all events, is the chief impression left upon us after perusing a report of a recent debate by the committee on a motion to rescind a former resolution, in which it had been decided to abandon the competition system, and to appoint the architects of one school to design two other schools. The advocate of rescission urged that the work ought to be thrown open to competition; but as he appeared to think also that 3½ per cent. was an adequate commission for the selected architects, it is clear that the proposed reduction on the recognised rate would create a rather worse grievance than that which the speaker was opposing. It may be remembered that in the first instance the Education Committee declined to ask the R.I.B.A. to appoint an assessor; whereupon the Institute issued the customary notice requiring its members to abstain from competing. This prohibition had no deterrent effect on the

committee, and in the upshot they had the choice of 37 designs, 73 members of the Institute having withdrawn. When, therefore, the committee afterwards found that the firm of architects they had secured were serving them well, it was natural to consult the successful firm with respect to the additional schools. But the motives underlying this decision are such that architects should make common cause against their recurrence. In such cases it is not enough for the R.I.B.A. to intervene with a curt notification that the conditions are unsatisfactory, for in too many instances the mere advice to members to abstain from competition has no other effect than that of a self-denying ordinance on the part of those who loyally abide by it, because the Institute is regarded—ignorantly enough—by the average young burgess as being more pretentious than powerful. Invest it with such credentials as a Registration Act would provide, and the immediate gain in status would be followed by an enormous accession of material force and moral influence. The power and authority of the Institute, and the consequent respect in which it would be held, would then place it on much the same efficient footing as the law and medical associations, which so completely control the professions they represent that even Governments stand in wholesome awe of them, while local authorities never dream of flouting their *dicta*. Of course, the Warrington resolution was not rescinded, but if the Institute had been able to speak with more than merely academic authority, we should have been spared this and many another absurd debate. Its advice would have been sought automatically and accepted as a matter of course.

#### Richmond Bridge.

THE bridge that spans the Thames at Richmond is more than a local possession; it is familiar throughout the country, either by repute or by personal recollection: and its possible destruction, therefore, concerns all who can appreciate its beauty. Though placed in the wrong position originally—leading down off the slope of a hill instead of springing from the foot—it has served all purposes well enough till within the past few years. But London has now got Richmond in its grip, and the traffic through its street has changed from a quiet easy one to the rush and turmoil of motor-buses and motor-cars. As a consequence, the bridge that has stood for more than 130 years has been rendered unsafe alike to foot-passengers and vehicular traffic. There has been a great deal of local discussion over the problem, culminating in a town's meeting last month, when proposals for a new bridge at the foot of the slope and for altering the present bridge were put forward: the matter being finally left for the Middlesex and Surrey Councils to settle. Our own view of the question is quite clear. We consider that the existing bridge is in the wrong place, and of the wrong type of design for modern traffic, but that it is nevertheless such a delightful composition as to warrant being left alone and preserved. Suggestions have been made for filling up the hollow on one side and for corbeling out the footways, but these, in our opinion, will result in destroying the charm of the present bridge while not meeting the traffic problem of to-day and to-morrow. Let then the old bridge remain untouched, and in line with Water Lane and the main thoroughfare let a new bridge be built across the river in two spans—one to a pier on the island in mid-stream, and another thence to the Middlesex shore. In that way only will a satisfactory result be achieved. To tinker with the existing bridge will be to spoil it without gaining anything effective in return. A new bridge at the foot of the hill is the only scheme worth thinking about: it is, indeed, the obvious and perfect solution of the problem.



## THE STABLES AT THE CHÂTEAU DE CHANTILLY.

THE world-famous stables of the Château de Chantilly have an architectural as well as an historical interest. It was Louis Henri Auguste de Bourbon, seventh Prince de Condé, who, banished from the Court, amused himself at his Château de Chantilly by improving his residence and domains, and, above all, by building the huge stables which, by their magnitude, form such an imposing object on the landscape, especially as one approaches them by way of one of the large avenues which debouch from the forest.

The Duke "loved passionately the sciences and arts. Immensely rich, prodigal in the satisfaction of his whims, and more smitten than any other member of his family with the charms of Chantilly, he seems to have made the embellishment of that residence the aim of his existence." The architect he employed was Jean Aubert, whom the Duke had known for ten years; Aubert having, in 1709-10, superintended extensive works at another residence of the Condés—the Château de Saint-Maur. Aubert's work at Chantilly was begun in 1719, when the foundations were

dug, and quarries were opened for the supply of the stone. The first stone was laid by the Duke himself on May 16th, 1721, and the work was finished in 1735; and fortunately the ravages of the Revolution, which wrecked the mansion and destroyed the park, left the stables almost unscathed.

The principal building comprises two symmetrical wings, united by a central pavilion, and flanked at the extremities by two smaller pavilions. Each of the wings contains two ranges of stalls, with total accommodation for 240 horses. The dimensions of this building are little short of colossal, for it extends to a length of more than 200 yards along the 120-acre field on which the racecourse was formed in 1834. The central pavilion contains a large hall, octagonal on plan, in front of which is a monumental fountain, which was originally adorned with the figures of two horses and a pair of dolphins; but these, being made of lead, were transformed into bullets during the Revolution. Surrounding the interior of this central hall is a balcony (with wrought-iron railings) giving access



General View of Exterior.



Detail of Main Entrance.



General View of Interior.



to the rooms above the stables in the wings. The ducal stables themselves somewhat resemble the aisles of some great church. One of the wings is now occupied by administrative offices, while the other serves as a sort of museum in which are preserved sculptures, mouldings, and other relics of the pre-Revolution grandeur of the château and of the other buildings.

The roof of the central pavilion is but little short of 28 mètres above ground-level, and was formerly surmounted by an equestrian figure of Fame; but this also was melted down at the time of the Revolution. The entrance has a tympanum decorated with a group of horses carved in high relief, and surmounted by the arms of the Bourbons. The return faces of the principal building, while corresponding with each other in balance and mass, differ considerably in detail. That on the eastern side is composed of two pavilions connected by arcading decorated with equestrian carvings. That to the west is similarly composed; but the two pavilions are here united by a less lofty building, in the centre of which is a doorway leading to the kennels. This doorway is decorated with carved trophies of the chase, and its pediment shows in bas-relief a boar-hunt with other sculptures as supports. A photograph of it is reproduced on page 2.

At the back of the main building is a circular courtyard or open-air riding circus, 39 mètres in diameter, giving access to the subsidiary buildings, which, in two separate groups, surround two other large yards. These buildings comprise the harness-rooms, with housing accommodation for the working staff. The kennels, besides being of huge extent, were formerly of great magnificence. They were provided with fountains decorated with the sculptured heads of boars and stags, and the walls inside were painted with incidents, records, and mementoes of the chase; and the friends and officers of the Duke were here accommodated in handsome apartments.

The decorative work was executed under the direction of Rémy François Bridault, a Parisian sculptor, who in 1736 was head of the Academy of Saint-Luc, and who had for collaborators such skilful carvers as Bernard, Coutelet, Brault, and Lefèvre. The carvings are executed with breadth, simplicity, and an almost brutal energy, which, however, is corrected on a distant view, whence, if they had been more finely cut, they would have failed of their intended bold effect. To what extent the architect, Aubert, was responsible for the suggestion or design of these decorations is not recorded; but the various elements seem to have been co-ordinated by a master-mind. In 1898-1902 the Duc D'Aumale entrusted the restoration of the buildings to MM. Daumet and Saint-Ange. They modified, to some extent, the subsidiary buildings, but treated the main edifice conservatively, so that, apart from a few minor details, it to-day reveals only the mind and art of Jean Aubert and his ducal employer. It does not represent the best traditions of French architecture, but there is a certain grace about it which is distinctly attractive, and the carved embellishments are full of interest; as may be judged from the accompanying illustrations.

### NERO'S GOLDEN HOUSE.

SOME very interesting excavations are being made by the Italian Government in Nero's "Golden House" at Rome. Nero's "folly," of which the wits said that it would embrace all Rome, and that the good citizens, emigrating in quest of apartments to Veii, would probably find that it had extended thither also, covered an area about thrice that occupied by the present Vatican with all its appurtenances. Erected after the burning of Rome in 64, the "Golden House," which extended from the Palatine far up the Esquiline,

and of which the artistic Emperor complacently remarked that "he was now lodged as a man should be," was converted by his successors into other edifices, according to the time-honoured fashion of Rome, and, while the Colosseum arose on the site of the Neronian lake, the baths of Titus and of Trajan respectively represent other portions of the Neronian Palace.

The importance of the present excavations (which are being carried out at the suggestion of a young German archæologist named Dr. Weege) is due to the fact that some of the most famous paintings and drawings of the sixteenth century, when the baths of Trajan were more easily accessible, were copied, often erroneously, from the beautiful mural decorations which the removal of the accumulated earth is now bringing to light. Descending from a lovely orange garden into the underground passages, one reaches the room in a niche of which the famous "Laocoon" is said to have been found in 1506. Recently a marble hand of the same marble as the "Laocoon" was unearthed here, and it was hoped that it might prove to be part of the missing limb of the statue.

Besides the mural paintings, the excavations have revealed a number of historic names, scratched, after the fashion of the Bank Holiday tourist, on the walls and ceilings. Nearly 200 such names have been already noted down, beginning with the year 1495. Most of them are Dutch; but of Britons there are Cameron, Buchan, and John Parker. One King has scrawled his name there—Gustavus Adolphus III., of Sweden, with the date 1784, eight years before his assassination. It is to be hoped that the gigantic work of clearing these immense passages of earth will be continued. Rome will thus gain a fresh attraction.

### BRAMANTE.

MR. LESLIE WILKINSON writes to say that Bramante's church "at Lodi," mentioned in Mr. Statham's article on Bramante in a recent issue, should have been described as "at Todi," which we find is correct. The plan and section, with a considerable description of the church, are given in Fergusson's "Modern Architecture" as of a church "at Lodi" attributed to Bramante; evidently "Lodi" is a mistake (either of the author or the printer) for "Todi," a small town in Umbria, about thirty miles south of Perugia. Mr. Wilkinson thinks the dome was a later addition, though the main design is probably Bramante's. The church is dedicated to Sta. Maria della Consolazione.

### R.I.B.A. PROBLEMS OF DESIGN.

WE illustrate this week, on page 13, the approved design for an art gallery by Mr. T. T. Jenkins, of the Liverpool School of Architecture.

Particulars of Subjects VII, VIII., and IX. have just been issued by the Institute. They are as follows:

#### SUBJECT VII.

(a) A monumental staircase and vestibule to a large museum; (b) a village inn with not more than eight bedrooms. (Drawings to be sent in by February 28.)

#### SUBJECT VIII.

(a) A covered carriage entrance to a large hotel built in stone; (b) a gatehouse to a college. (Drawings to be sent in by April 30.)

#### SUBJECT IX.

(a) A monument in a public place containing one or more fountains commemorating the bringing of water to a town; (b) a bank in a small county town on a corner site. (Drawings to be sent in by June 30.)



## CORRESPONDENCE

*The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents.  
Correspondents are asked to be brief and to write on one side only of the paper.*

*"Comparative Costs of Various Methods of Construction."  
To the Editor of THE ARCHITECTS' AND BUILDERS' JOURNAL.*

SIR,—My letter on the above subject was merely intended to show that the costs quoted in the article written by Mr. A. H. Purdie were not comparative. The article commencing with a statement that "architects undertaking work for the first time were confronted by problems of cost" went on to deal with methods of construction and comparative costs, although the concluding paragraph stated that the figures were based on local prices (locality not given); yet undoubtedly the author expected the inexperienced architect to follow his mode of construction according to the comparative costs given—otherwise what was the use of the article?

My contention is that a text-book on the subject of costs, or comparisons of construction, is valueless unless you have one for each district. The architect starting must expect to face problems; he will never learn if his knowledge is gleaned only from text-books.

The pith of my letter was intended to be—that every architect must be mathematically sound and not work according to rule-of-thumb methods. If I should lay bare my experience of costs in this district, of what value would it be to the architect practising in the extreme north or south? My quotation of costs of rubble walling was given solely to show this marked variation of costs. The cheapness of this class of work sometimes is due to the fact that Yorkshire contains so many sandstone quarries, which are opened on numerous estates. Most of these quarries have to be cleared of top lift (thin beds of stone) before the rock body is exposed suitable for ashlar, etc. This rubble can be purchased for about 1s. per load (about  $1\frac{1}{2}$  sq. yds. of 20 in. walling). I have even known it to be given away to clear the quarry. This class of stone is sound, though thin; it weathers well, and makes excellent walls with a suitable number of throughs, as the Yorkshire waller is quite an artist at his trade. The labour on this class of walling can be obtained for 7s. 6d. per rood (7 sq. yds.), so that when a building has to be erected near such a quarry it will be very cheap; but I could not tell the student that he must build with rubble walls if he would build cheaply, as the next job might be far cheaper and better in brick or concrete. The architect, whether starting in his profession or with years of experience behind him, must ever be a student and keep tuned with the times, but his studentship must be a rubbing of shoulders with the workers and not merely turning over the leaves of a book.

York.

W. J. SWAIN.

*Building Construction in Technical Schools.*

*To the Editor of THE ARCHITECTS' AND BUILDERS' JOURNAL.*

SIR,—All interested in the teaching of building construction will have welcomed the leading article in your issue for December 18th, and Professor Reilly's remarks therein. The statement, however, as to the system of teaching is not quite correct. The division is now into two grades, lower and higher, in each of which pass certificates are awarded, also distinction certificates in the higher examination. A further examination is held for competitive scholarships and exhibitions. The practical examination at South Kensington, which required some knowledge of architectural design, and a pass in the Board of Education examination in architecture, has been discontinued.

In 1912 the only questions requiring any design were a French casement in the lower and a bell turret in the higher and competitive examinations.

It is questionable whether the new system will be as popular as the old, a certificate issued by the central authority being considered of much more importance than that of the local authority.

As stated, some architects have been appointed as consultative inspectors, and their influence and suggestions should in some measure direct the teaching along the lines indicated.

Without making exhaustive inquiries, it is impossible to say what proportion of teachers have had any architectural training, and it is only a year or two since the examiners' report suggested that teachers who were actually engaged on buildings should be preferred to those employed in offices. But it must not be forgotten that examination results are the standard by which the success of a class is judged, and this limits the teaching to some extent. I find that the interest of a class is stimulated by carrying through full detail drawings of one or two buildings during the session, but many detached details in the most favourable situations, and a forecast of the examination, pays better in results than the thorough working out of a comprehensive detail, with its limitations.

With reference to the text-books, I believe there are only two in general use which profess to cover the requirements of the syllabus. Probably the one in most general use has been compiled with the assistance of an A.R.I.B.A., by whom, doubtless, many of the drawings were made. The other certainly comes under your category, and architecturally cannot be too strongly condemned. Two series of "plates" by Scottish teachers approach more nearly to the ideal, and one must also acknowledge the valuable series of details given in the Journal.

The subject is an important one, and I should very much like to see the matter further discussed in your columns.

York.

FREDK. DYER, P.A.S.I.

*Mr. Wells's Presidential Address.*

*To the Editor of THE ARCHITECTS' AND BUILDERS' JOURNAL.*

SIR,—Referring to the above and your correspondent P.'s remarks thereon, the latter's conclusion that the hardening of the concrete would reduce the lever arm and consequently the tensile resistance of a beam or slab is obviously erroneous.

Calculating a beam or slab on certain stresses, such as 17,000 and 600, the neutral axis will be at a depth of .33 d, and the stress line a straight line. (See Fig. 1.)

Increasing strength, owing to age, will have the effect shown in Fig. 2. The lever arm remains the



same as well as the position of the neutral axis, but the area of the compressive triangle is increased, and consequently the resistance of the section to compression.

As regards the tensile resistance of the section, which must be equal to the bending moment and the compressive resistance, or at any rate not less, the point in question raises the much-discussed difference of opinion respecting the tensile resistance of the concrete.

We all know that before the introduction of reinforced concrete the usual way of constructing a fire-proof floor was to place small R.S.J.'s some 3 ft. apart, and fill in the space between with concrete. This used to be as a rule coke breeze concrete, porous, not tamped, and of a poor composition. Yet these 3 ft. slabs were and are able to resist appreciable loads, and this

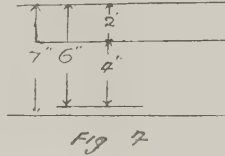
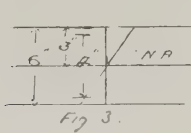


construction has been used with great success for warehouse work.

Taking a total load of only 180 lb./ft.<sup>2</sup> the bending moment would be

$$B = \frac{180 \times 3 \times 36}{8} = 2430$$

The neutral axis lies in the centre of the section or at  $\frac{1}{2}d$  (see Fig. 3).



This gives a lever arm of 4 ins., and the stress in the concrete in compression, *as well as tension*, would be

$$B = \frac{C \times 3 \times 12 \times 4}{2} \text{ or } C = 33 \text{ lb/in } 2$$

This for coke breeze concrete.

Considering our modern methods of making concrete, I am of opinion that this figure could reasonably be increased to twice that amount, or, say, at any rate, 60 lb/in 2. As a matter of fact, I have often seen plain concrete slabs tested to four times that amount before breaking and well remember a case of a plain slab 5 ins. thick and 5 ft. wide resisting this breaking load.

If we assume a tensile resistance of 60 lb/in 2 for the concrete at 28 days; it stands to reason that this resistance will increase in course of time just the same as the compressive resistance, and assuming this to be at the same rate, the concrete would have a tensile resistance after a year of about 100 lb/in 2, and this would, in effect, be the same as an increased lever arm, as can be seen from the following example:

A 7 inch slab 10 feet span, load 200 lb/ft.<sup>2</sup>, freely supported.

$$B = \frac{200 \times 10 \times 120}{8} = 30,000$$

$$\text{Lever arm } L = 4 + 1.33 = 5.33$$

$$At = \frac{30,000}{17,000 \times 5.33} = .33 \text{ in } 2$$

Checking the stresses we find

$$30,000 = \frac{c \times 2 \times 12}{2} \times 5.33 \text{ or } c = 470 \text{ lb/in } 2$$

$$30,000 = t \times .33 \times 5.33 \text{ or } t = 17,056 \text{ lb/in } 2$$

Assuming the 470 lb/in 2 to represent 60 per cent. of the final resistance of the concrete, which is supposed to be reached at the age of one year, such final resistance would be about 780 lb/in 2. The piece would then resist in compression,

$$\frac{780 \times 2 \times 12 \times 5.33}{2} = 49,889.$$

Its tensile resistance would remain precisely the same if we did not take the concrete into consideration. As it is, however, a fact that a beam does resist greater loads with age, it is perfectly clear that this can only be due to the increased tensile resistance of the concrete.

Allowing for the tensile resistance of concrete, 60 lb/in 2, we would have a total resistance of the piece at 28 days of

$$17,000 \times .33 \times 5.33 + \frac{60 \times 4 \times 12}{2} \times 5.33 = 37,576$$

And assuming the final resistance of the concrete to be 100 lb/in 2, the tensile resistance of the section would be after a year = 42,693, which is equal to an increase of 15 per cent.

Naturally the increase in compressive strength is much greater, but does not come into full play, as the strength of the beam depends on the tensile as well as the compressive resistance and we can therefore only allow for the smaller of the values obtained.

Now this 15 per cent. increase would be equal to an increased lever arm as follows:

$$R = 37,576 = 17,000 \times .33 \times L + \frac{60 \times 4 \times 12 \times L}{2} \text{ or } L = 5.33$$

$$R = 42,693 = 17,000 \times .33 \times L + \frac{60 \times 4 \times 12 \times L}{2} \text{ or } L = 6.05$$

F. RINGS.

London Bridge, S.E.

### Areas of Circles.

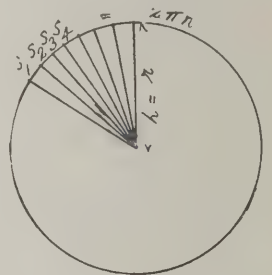
To the Editor of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIR,—I venture to present the following synthetic derivation of the formulæ commonly employed in computing the areas of circles of given diameter:—

(1) The circumference of a circle =  $2\pi r$  ( $r$  = radius).

(2) The area of a triangle =  $\frac{1}{2}$  altitude  $\times$  base.

Consider the circle to be the totality of a number of triangles whose bases are curvilinear and conjoined to form the circumference of the circle, and whose apices are coincident at the centre of the circle.



Then it is clear that the area of the circle = the sum of the areas of the triangles of which it is composed.

Let  $s_1, s_2, s_3$ , etc., be the lengths of the bases of the triangles, and let  $h$  = their altitudes.

Then the area of one of the triangles =  $\frac{1}{2}hs_1$ , and the sum of the areas of all the triangles

$$\begin{aligned} &= \frac{1}{2}hs_1 + \frac{1}{2}hs_2 + \frac{1}{2}hs_3 + \dots \\ &= \frac{1}{2}h(s_1 + s_2 + s_3 + \dots) \\ &= \frac{1}{2}h(2\pi r) \end{aligned}$$

When the number of triangles is infinite, then  $h = r$ , and  $\frac{1}{2}h(2\pi r)$  becomes  $\frac{1}{2}r(2\pi r) = \frac{\pi r^2}{1}$  (I).

If  $r$  be written in terms of diameter, then (I) becomes  $\pi\left(\frac{d}{2}\right)^2 = 3.1416\left(\frac{d^2}{4}\right) = .7854d^2$  (II).

Glasgow.

COLIN SINCLAIR.

### WORKING DRAWINGS BY WELL-KNOWN ARCHITECTS.

AS the eleventh example in this series we reproduce, on pages 16 and 17, a detail drawing of St. George's House, Perth, Western Australia, now being erected on St. George's Terrace for Messrs. Karri and Jarrah Co., Ltd., from designs by Messrs. Warwick and Hall, A.A.R.I.B.A., of London, W.C. The building is being carried out externally in stone. Internally the construction is entirely fire-resisting. Messrs. Hobbs, Smith, and Forbes, of Perth, are acting as supervising architects.

### MODERN SMALL HOUSES.

AT the Hampstead Garden Suburb, Golder's Green, houses of all sorts are to be seen, though the majority follow the "cottage" type which has come to be regarded (mistakenly, we think) as the proper type for the modern garden suburb. But in the case of the house by Mr. Lutyens, illustrated on page 15, as the tenth in our series of modern small houses, there is a welcome departure, the design being based largely on Renaissance work, with an absence of long sloping roofs. The house is one of a range, and is carried out in brick. The interior arrangement is shown by the plans.



## DISTRICT SURVEYORS' FEES.

LAST week we cited a case in which a district surveyor made an unsuccessful application for fees prescribed under the London Building Act of 1894, in addition to those claimed under the Act of 1905. We now note a current case in which the district surveyor of Rotherhithe claimed that notice must be served and fees paid in respect of the laying or reconstruction of sewers which, in certain instances, were carried under buildings, although in no case was the fabric touched. The magistrate held that whatever was done incidentally to a building in the carrying out of a sewer construction was not a work or structure for which notice to the district surveyor was necessary. The action, which was brought against Mr. Robert John Angel, borough surveyor of Bermondsey, was therefore dismissed, with twelve guineas costs against the district surveyor, the magistrate in this instance, as in that recorded last week, consenting to state a case. Hence in both cases, further litigation is possible if not probable. All this worry and expense, and all this hair-splitting as to whether a district surveyor is entitled to be paid under two Acts for the same work, and all this harassing uncertainty as to what is or is not work upon which he is entitled to claim any fees at all, might, as we showed last week, be very easily avoided by thoroughly readjusting the whole system of inspection. Last week we contended that district surveyors ought not to be paid in fees by the builder, but in the form of a salary by their own employers—that is, ultimately, out of the public purse. As a mere matter of delicacy, not to say a matter of principle, there ought to be no money transaction between builder and building inspector. Besides, to inspect a building and make the builder pay for the privilege is abhorrent to the sense of fitness. The whole system, indeed, is an antiquated survival of an inferior stage of social development. The more closely it is examined, the more absurd it

becomes. Legal records show that a district surveyor may entertain a genuine conviction that he is entitled to fourteen fees instead of one in a case in which there are fourteen sets of chambers under one roof, and that it may take several costly actions at law to prove that he is in the wrong. Moreover, in the discharge of a district surveyor's admittedly onerous and important duties, there are scores of other nice points in which he will very naturally give himself the benefit of the doubt; and he is encouraged in this course by the knowledge that, in case the builder objects, "the Council may, in any case where they shall think fit so to do, undertake on behalf of a district surveyor any proceedings which would otherwise be undertaken by such district surveyor, or may pay the costs incurred by any district surveyor in any proceedings taken by him under this Act." Similarly, "the Council shall pay to the district surveyor such fees as may be from time to time appointed by the Tribunal of Appeal in respect of any work done by the district surveyor in relation to the preparation of evidence and giving the same before the Tribunal of Appeal." These provisions may almost be said to have the effect of a direct incentive to litigation, whether by reposing too much arbitrary power in the hands of the district surveyor, or by provoking the builder to resist it. Litigation which has for its sole object the interpretation of the Acts with regard to their bearing upon the mere question of fees ought to be impossible, and can, and doubtless will, be made so by the simple expedient of abolishing fees altogether. To be quite explicit, let us repeat that what is meant is not merely that the primitive and speculative system of paying a district surveyor by means of his fees shall be entirely superseded, but that the builder shall be relieved of all obligation to pay any fees whatsoever for the inspection of his work. Obviously this reform cannot be effected without casting an additional burden on a reluctant community; but, after all, its incidence on the general public will hardly be felt; and the transference of the burden will be a mere act of justice to the building industry.



ENTRANCE TO THE MUSOCCO CEMETERY, MILAN.



## THE NEW DELHI.

THE style of architecture to be adopted for the new Delhi continues to excite attention.

### *Government Statement.*

In the House of Commons just before Christmas it was stated, on behalf of the Government, that the Town Planning Committee were waiting until their second visit to Delhi before issuing their full and final report. Their first impressions were embodied in a preliminary report, and considered by the Indian authorities, who suggested certain modifications. The Committee had no authority to deal with anything except the lay-out of the new city. The style of architecture was a question for the future, very little having been decided in regard to it. There would be a vast variety of buildings destined for different purposes. Each building must be of the form which would serve the particular purpose for which it was intended, and at the same time there must be general harmony which would make a complete and beautiful unit. Expressing his own personal opinion Mr. H. Baker, Financial Secretary to the War Office, said there was really no reason why they should not have Indian and European architecture side by side. The Secretary of State had decided, and the Viceroy fully agreed, that the fullest possible scope should be given to Indian artists and craftsmen to work on the new city, to beautify it, and to give vent to Indian aspirations and ideas. There were serious difficulties in the way of adopting competition without restriction in the choice of an architect. Until the ground plan had been settled it was, he thought, premature to consider questions of architects and architecture.

### *Competition.*

Referring to the choice of an architect, Mr. Arthur W. Soames, M.P., says, in a letter to *The Times*: "Which is the best method to adopt in order to secure the finest possible work? There are the proverbial three courses: (1) An open competition; (2) a limited competition; (3) the selection of an individual. Now an open competition has this to recommend it, that it has an appearance of fairness, and it entrenches the authorities securely against the odious charge of favouritism. I submit, however, that it is ruled out of court if my two propositions are admitted. For it cannot be expected that a large number of competent architects, in addition to incurring the enormous labour and expense of such a competition, would be able further to dislocate their practices by a visit to India sufficiently long to enable them to saturate themselves with its atmosphere. Moreover, it is notorious that an open competition rarely attracts the best men, and this is not a task for the immature and budding architect, but for a man of wide experience whose artistic powers have attained their fullest development.

"Further, it is hardly sufficiently realised that in a competition a man rarely produces the best work of which he is capable. He has necessarily one eye on the judges all the time, and the temptation is serious to think rather of what is most likely to win than of what is the absolute best.

"A limited competition of (say) six carefully selected men would probably be better, but I submit that the considerations adduced above still apply. The best men, presumably all very busy men, would be least able to spare the necessary time for preparation and competition on the off chance of success. If they did they would certainly deserve very handsome remuneration for their labours and loss of time.

"I wish therefore to urge upon those in authority not to take the easy way out, but to take their courage in both hands and select the man whom, after the fullest inquiry, they find to be esteemed most capable of rising to this great opportunity. How are they to select him? It is submitted that there are two bodies

fitted to advise on the subject, the Royal Academy of Arts and the Royal Institute of British Architects. Or, alternatively, let five-and-twenty picked architects be each of them asked to name the *two* men whom he considers best fitted for the work, and abide by the result of the vote."

### *Mr. William Archer's Views.*

Mr. William Archer, in an article in the *Daily News and Leader*, says: "It would ill befit an ignoramus to rush into the Battle of the Styles. But one principle, of a somewhat negative cast, seems to me fundamental. The architecture should be as free as possible from associations with a definite historic past, whether Indian or European. Everybody seems to agree in ruling out the flagrant incongruity of Gothic. But any Indian or Indo-Saracenic style would be equally mistaken. It would provoke comparison with the many architectural gems of the surrounding country; but that is the least objection. The heart of the matter is that there is no historic (as distinct from mythic) period to which United India (as distinct from any caste, tribe or sect) can look back with rational complacency. Why, for instance, should we protract and perpetuate the architectural fashions of the Mughal conquerors? The new Delhi, if it signifies anything, signifies a break with the tyrannies and enmities and manifold distractions of India's political past. Her spiritual past is another matter. What was best in it may one day be resuscitated: at any rate, heroic efforts are being made to that end. But the orientation of the new Delhi should be towards the political future, which must derive neither from Afghan nor from Mughal, neither from Rajput Maratha nor Sikh.

"Still more evident should it be that a distinctively British style of architecture would be out of place. In any reasonable view of the matter, the British rule in India is an instrument, not an end. We are here to redeem India from her political past and to give her a fair start towards a nobler future. It is a gigantic task; and, if we are to succeed, it is essential that we should not mistake its nature, and think and build as if we were here, not for the good of India, but for the glory of Britain. Therefore, a distinctively and vain-gloriously British architecture would be at once bad taste and bad politics.

"What, then, is the way out? Very diffidently, I would suggest that the Doric and Ionic orders of Greece are the most worldwide in their acceptance, and the least tinged (for the modern mind, at any rate) with any politico-historic associations. Though European in spirit, they were born on the confines of Asia; and they have lost their national accent, they have been depolarised by time. I seem to see a shimmering vision of giant masses of building, with spacious porticos and loggias, connected by shady colonnades, rich in material, plain to austerity in point of ornament, aiming at functional fitness and dignity of proportion rather than at any sort of swagger, whether of the East or of the West. The solution, surely, lies in the realisation of some such ideal."

## THE MUSOCCO CEMETERY, MILAN.

WE illustrate on the Centre Plate of this issue the crematorium in the Musocco Cemetery—the Municipal Cemetery—at Milan, and on the opposite page is shown the principal entrance. Like the cemetery at Genoa, which we illustrated last week, this is an admirable example of modern Classic work, displaying a grave dignity eminently appropriate to its purposes. The municipal cemetery at Milan was laid out in 1895, and is twice the size of the monumental cemetery in the same city, this latter covering fifty acres and being enclosed, like the one at Genoa, by colonnades. We regret that we have been unable to ascertain the name of the architect who designed the buildings.









THE CREMATORIUM





MILAN CEMETERY.









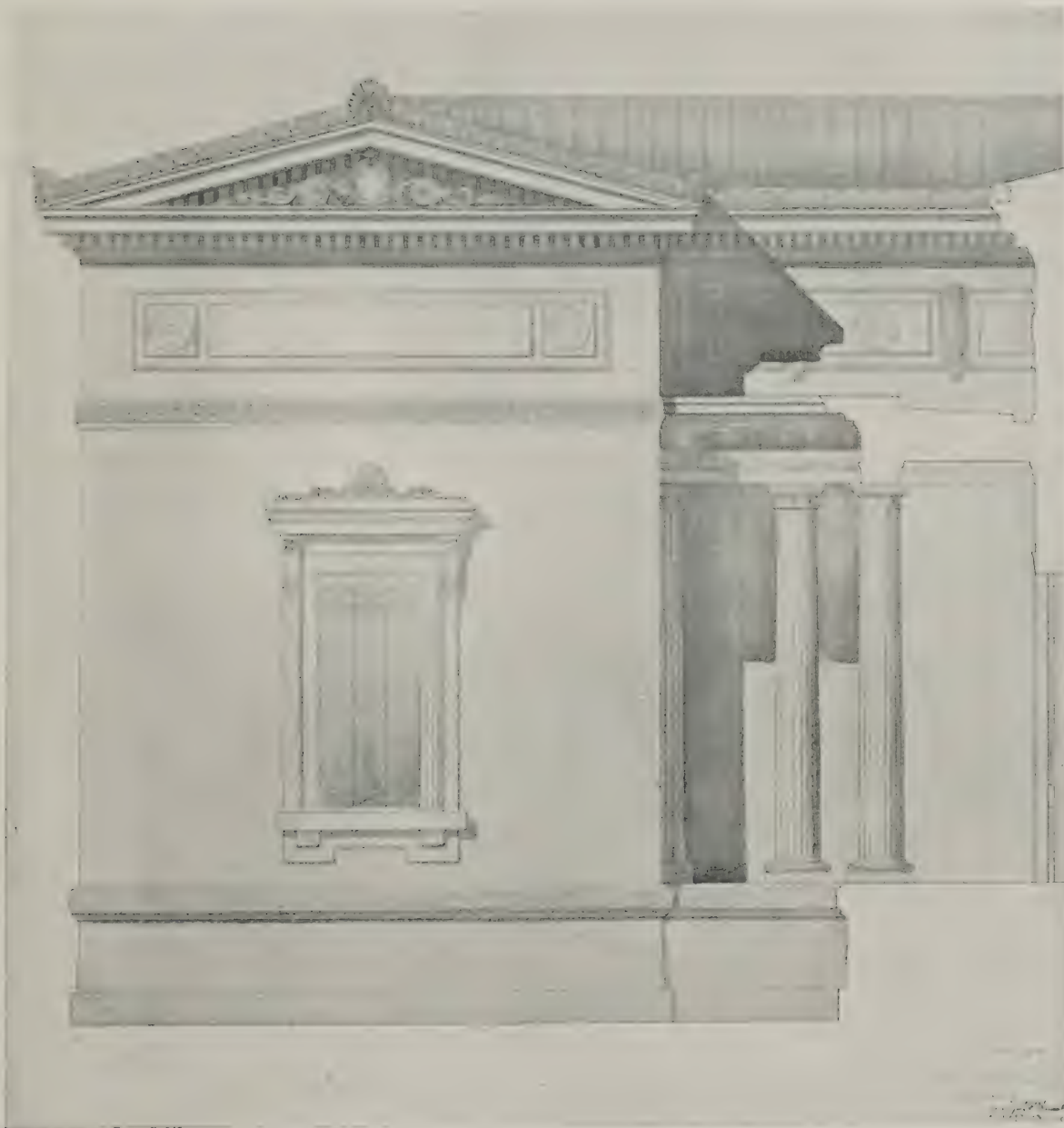
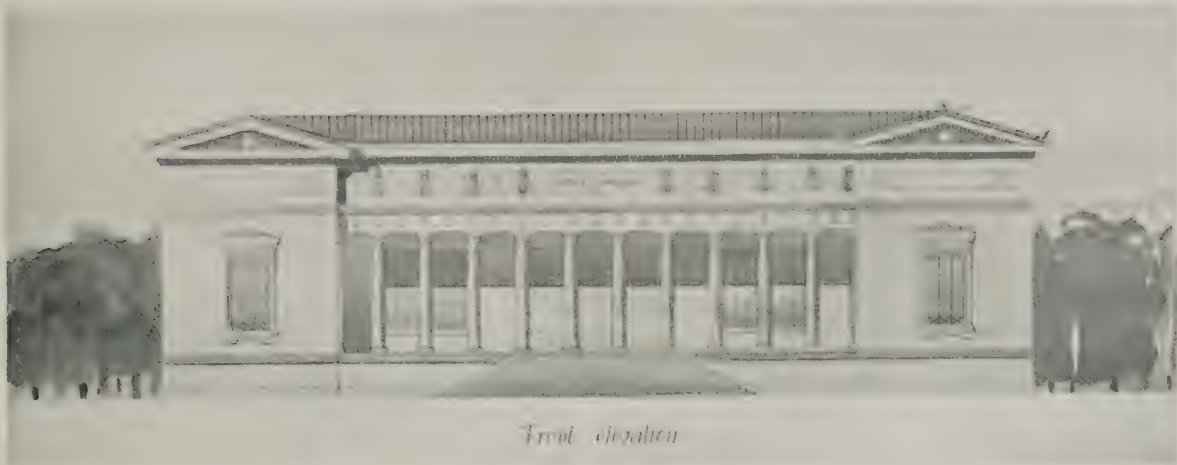
THE METROPOLITAN MUSEUM, NEW YORK: THE CENTRAL HALL.



IN THE  
UNIVERSITY OF SCOTLAND



STUDENTS' PAGE.



TESTIMONIES OF STUDIES FOR R.I.B.A. FINAL EXAMINATION: APPROVED DESIGN, SUBJECT V. (a).—  
AN ART GALLERY. BY T. T. JENKINS.



OF THE  
UNIVERSITY OF ILLINOIS

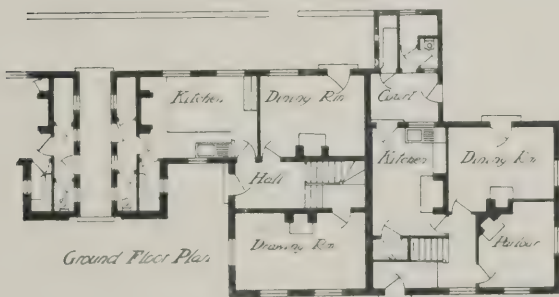




*HOUSES in ERSKINE HILL*

*HAMPSTEAD GARDEN SUBURB*

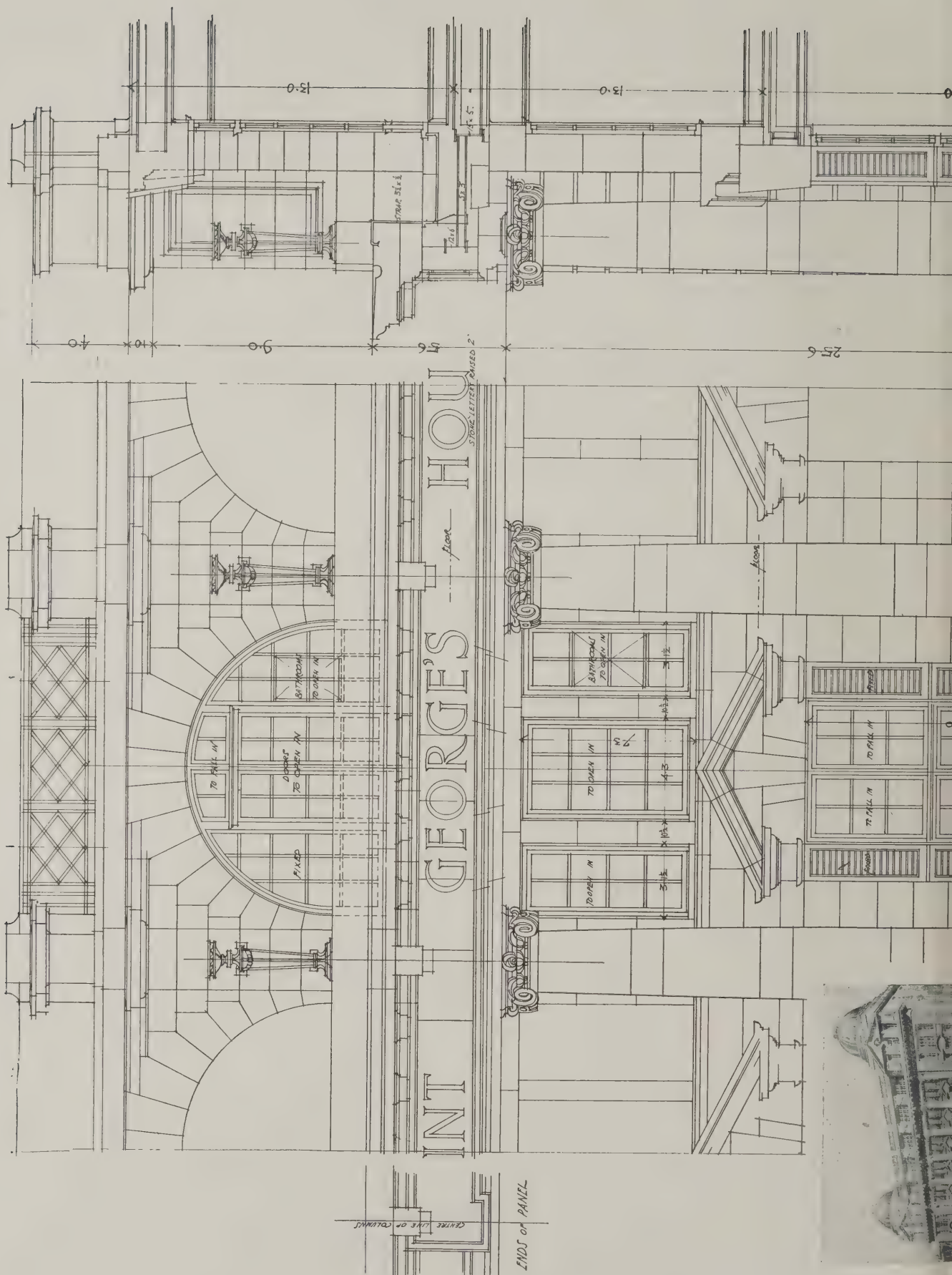
*E. L. LUTYENS, F.R.I.B.A., ARCHT.*

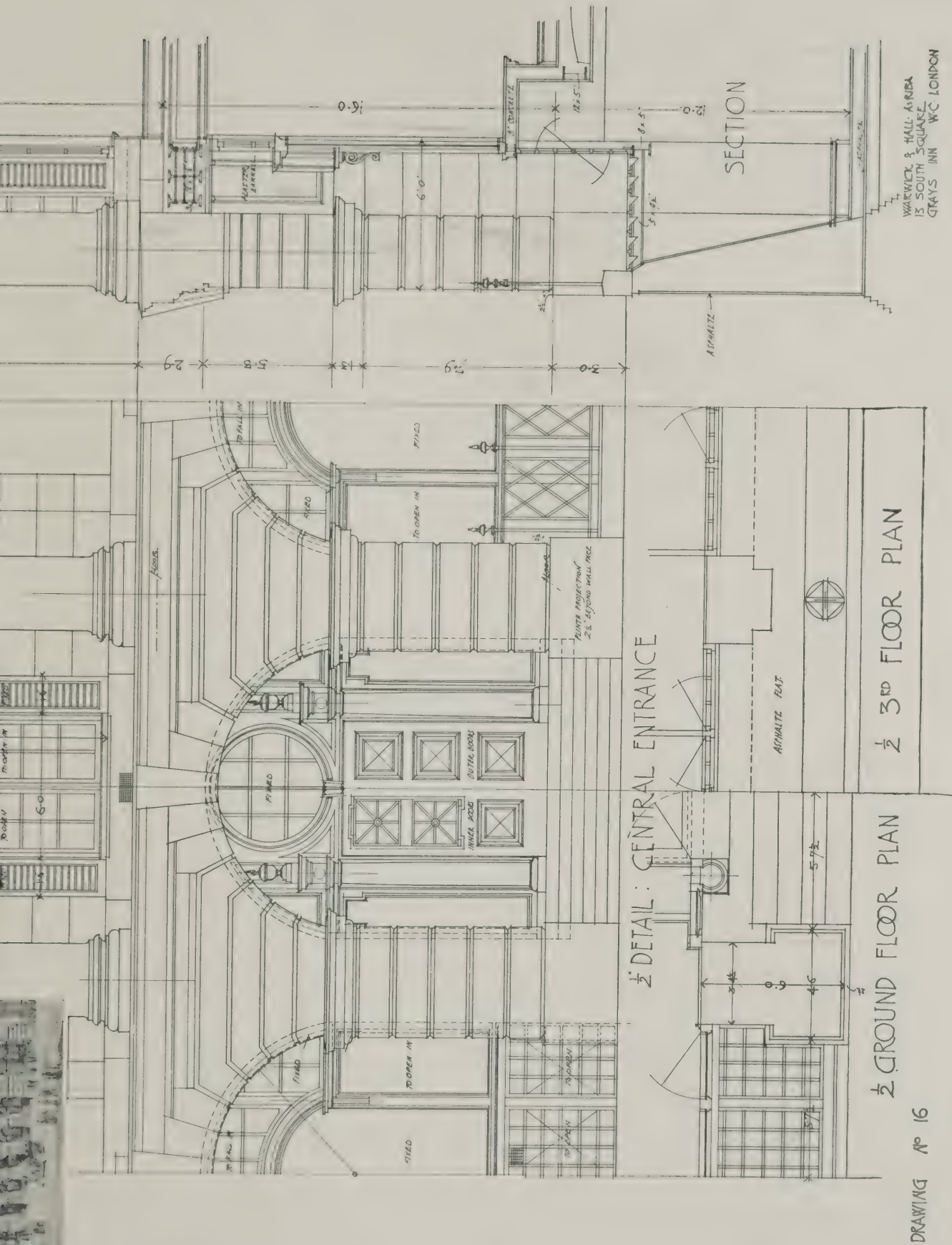


Scale 10 5 0 10 20 30 40 50 Feet

MODERN SMALL HOUSES—X.





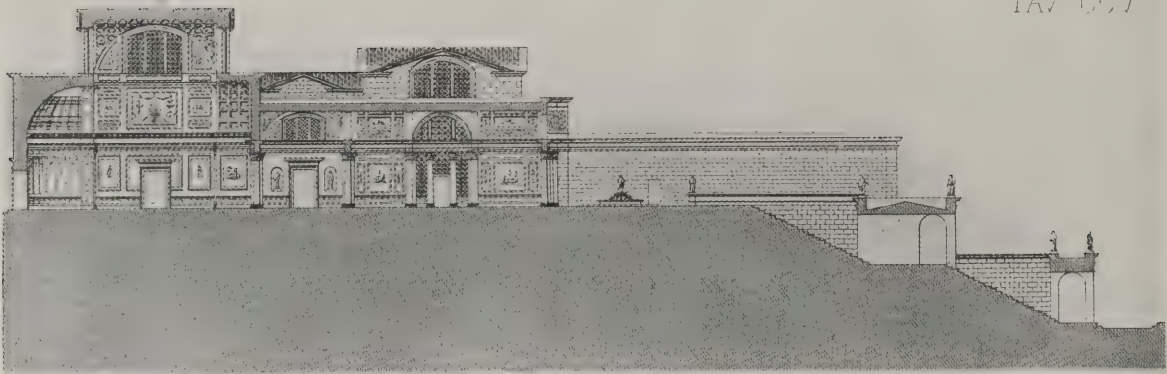


WORKING DRAWINGS BY WELL-KNOWN ARCHITECTS. XI.—ST. GEORGE'S HOUSE, PERTH, WESTERN AUSTRALIA.

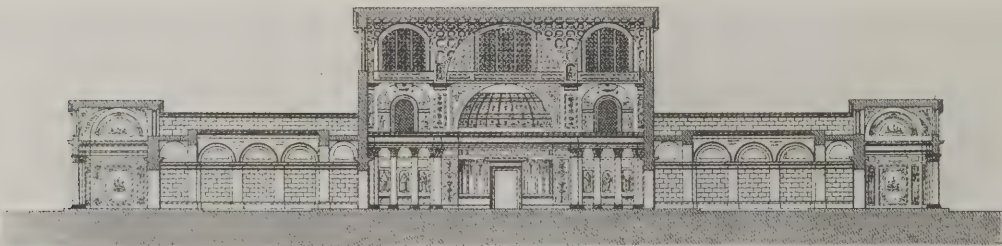
WARWICK AND HALL, A.A.R.I.B.A., ARCHITECTS.



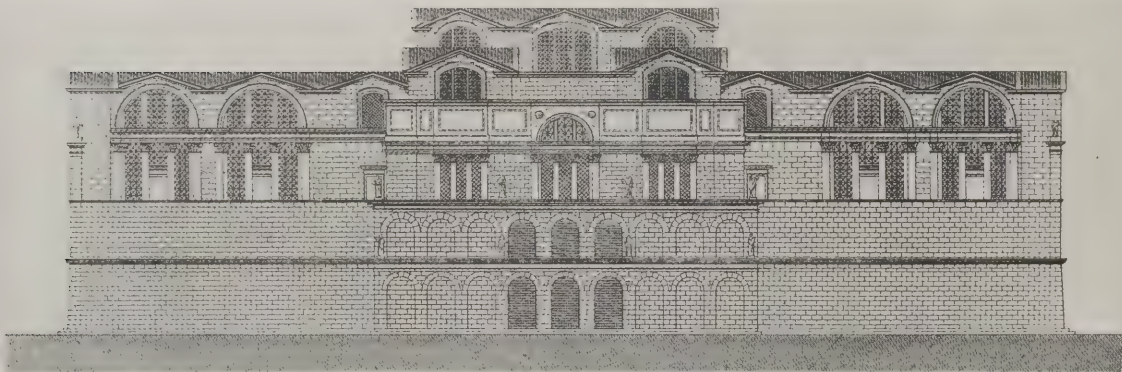
TAV. CCV



SEZIONE PER TRAVERSO



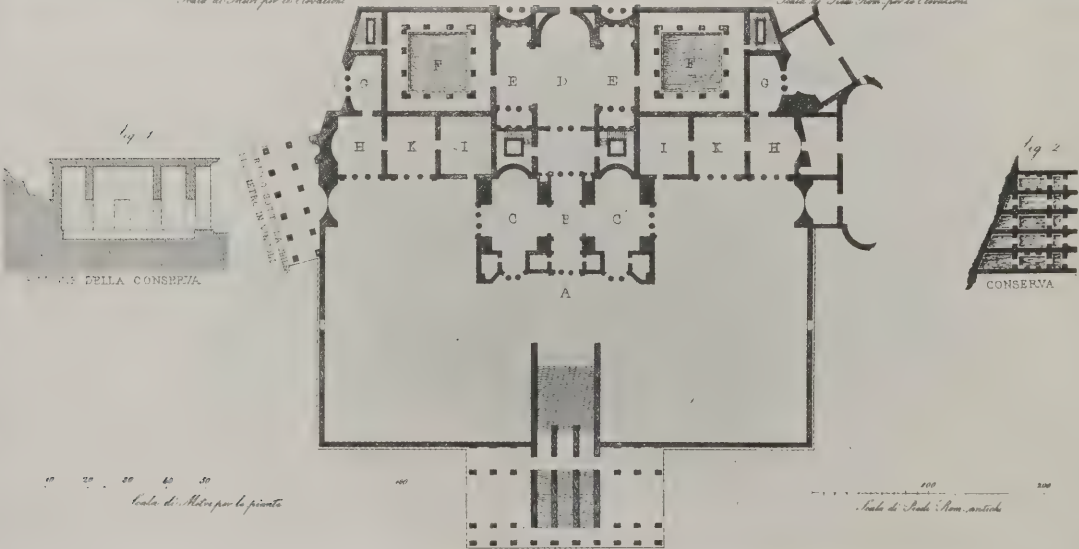
SEZIONE PER IL LUNGGO



RIPOSAZIONE DELLA FACCE VESTIBOLO

*Scala di Mole per le Pileasone*

*Scala di Ponte Romano per le Pileasone*



CONSERVA DELLA CONSERVA

CONSERVA

*Scala di Mole per la prima*

*Scala di Ponte Romano, antica*

THE BATHS OF TRAJAN, ROME. RESTORATION BY CANINA.



## THE VENICE OF THE NORTH.

BY HORACE PORTER, M.A.Cantab., A.R.I.B.A.

The island of Gotland is a low-lying plateau of limestone rock, some seventy miles long by thirty-five in breadth, in the middle of the Baltic Sea. The nearest land is Sweden, and with Sweden its history has been linked more or less closely from the ninth century. The island has been a part of the Swedish kingdom since 1645, and during the last two centuries the modern little town of Visby has come into being among the ruins of the past. That is one of the distinctive features in Visby's history, reflected in its present-day aspect—the absolute break between the old life and the new. The little Swedish town of to-day, with its quiet streets and shady gardens and small white-washed houses, has no more connection with the magnificent merchant city of the past than has some pert little hermit crab with the great shell in which it is domiciled. Only a quarter of a century ago there were fields to be ploughed within the circuit of the city wall, and although the shell is less empty now, as the Swedish Visby increases year by year, yet still the gaunt grey ruins dominate it like skeletons of a greatness that is dead.

In the twelfth century the Visby merchants had special privileges granted them by the Emperor Lothair, and organised the first beginnings of the great Hanseatic League, in which Visby was for a while the leading city. In the thirteenth century this "Venice of the North" reached the zenith of its wealth and power. Pilgrims as well as traders flocked thither on their way between Scandinavia and the Holy Land. Religious communities came to stay, and built their own churches. Visby had its own mint, its own Government, and its own code of sea law, which commanded obedience from the ports of Russia to the Mediterranean, and forms much of the basis of modern maritime law.

*The First Period.*

By the end of the twelfth century it is evident that Visby has already reached a high degree of prosperity. Unfortunately, that prosperity meant loss to the rest of Gotland, where no separate township had formerly been recognised. The island as a whole had been the unit of social life, and free trade had been practised in its fullest form, native and foreign merchants alike living and trading where they chose. But only those Gotlanders who were established at Visby were allowed to share in its life and privileges. The rest found their goods taxed and themselves shut out from its markets, as much by its exclusive laws as by the wall with which, at the beginning of the thirteenth century, the town was enclosed. Only a wall of moderate height was built at first, varying from 15 to 18 ft. The masonry was squared, uncoursed rubble of local limestone, the lower part being built with very large stones. It was finished at the top with wide battlements, alternately plain and pierced with a loophole. For a short distance at the north-east corner the later work has been cleared away, so that the wall stands out in its original line. But it is easy to follow this throughout, as the battlements show distinctly in contrast with the later masonry—generally of smaller stones—with which they were filled up at the subsequent raising of the wall.

The line of this enclosing wall is built along the edge of a ridge of rock, on the landward side, and down the slope to the sea at the north and south ends of the town. Along the sea-front it followed what seems to have been the old line of the shore for a distance which I find given as 1,950 yards. The three landward sides are estimated at 2,400 yards, making a total circuit of 4,350 yards. A considerable portion of the south and west walls has disappeared, but the rest of the line remains standing, with only a few breaches.

*The Second Period.*

To the Gotlanders outside the pale of Visby the enclosing of the town was a bitter affront, and one which they were not slow to resent. In the year 1288 their hostility was organised into open warfare, and long before that date the rich burghers must have realised the possibility of an attack upon their usurping city. Accordingly, they set to work to fortify the most important positions along the wall at no very long time, probably, after its completion. I call this the second period in the history of the ramparts, and should place it, roughly, at about the middle of the thirteenth century, a time of great building activity within the city. Some fine work in the way of church building belongs to this period, notably the greater part of the beautiful Abbey Church of St. Karin.

New towers were now constructed on the plan adopted with the majority of those added later, as projections outside the rampart. They are open towards the town, and present, on the outside, a rectangular base up to the lower level of the battlements, or about 13 ft. above the ground. Above that level the walls are carried up as five sides of an octagon, the change in form being effected by cutting off the external angles with what I may perhaps term *broaches* sloping sharply back against the diagonal faces. Each face is pierced with narrow embrasures, one above another, and access to the different levels, on the inside, was evidently obtained by means of wooden floors and ladders, the sockets for which can still be seen.

This type of structure is repeated in thirteen of the towers still standing, with no essential differences, but with certain variations of detail which help to suggest the order of their erection. The rectangular base in the later towers is carried up above the level of the battlements to the height of the raised rampart—i.e., about 30 ft. I should conjecture that these towers had not been so tall as those built later, but they are too much broken down to afford any certain evidence upon this point. It is, indeed, one of the many puzzles which the Visby walls afford to try and find a reason for the almost entire disappearance of the upper portion of these two towers.

Further towers were, I think, next added to protect the more level stretch of ground towards the east gate. They are in far more perfect condition than the other two, but they also present the characteristics of low bases and wide-jointed masonry, with larger-faced stones and less mortar than in the later work. In one the line of junction between the tower and the wall, on the south side, shows with special clearness the order of the different stages of rampart building. The wall at this point is based on the rock ridge, at the very edge of this, and the tower was built over the face of the rock and against the wall, up to the foot of the battlements, and bonded in with the

masonry filling up the space to the top of these, while above this level the raised part of the wall is butted against the side of the tower.

The growing anxiety for the safety of the town also found expression in the building of gateway towers over the east and north entrances. The latter presents some interesting features. It is built against the inner and outer faces of the city wall, round an archway similar to the existing "Fishermen's Gate" beside the Krut Torn, and that it was not part of the original plan is shown by its line of intersection with the wall, which turns from east to south just beyond the entrance. The tower is built right into the corner, on the inside, standing square with the north wall, so that its exterior projection meets this at a distance of about 2 ft. from the angle on the outside. This north-east corner of the wall, therefore, is seen up to the height of the old battlements, above which the later masonry shows no angle, but is carried on in the same line and butted against the tower with a straight joint.

*The Third Period.*

We come now to the third, and in some respects the most interesting, stage of the rampart building, comprising an immense amount of work done within a comparatively short space of time. Popular tradition places it in the last decade of the thirteenth century, after the open and unsuccessful attack upon the town in 1288. The work done to the ramparts during this third period comprised the raising of the city wall and the addition of forty or more new towers of various types. They are all open on the inside, with the one exception of the north-west corner tower, popularly known as "Cames."

Two more square gateway towers were built at the north-west corner. A number of rampart towers were also added with rectangular base and five-sided upper part. Four of these were built along the north wall and six along the east wall. Whether there were any on the western section of the south wall it is impossible to say, this part having entirely disappeared.

Those towers on the north side are the tallest and probably the latest built. Their greatest height is about 70 ft. They are not absolutely uniform in their dimensions, but on ground-plan they measure, roughly speaking, from 20 to 30 ft. in projection and from 24 to 28 ft. across the face.

The most remarkable feature of this later work is the type of balcony tower, or bartizan, evolved in the raising of the ramparts. These "saddle" or "hanging" towers, as they are termed locally, are, so far as I know, peculiar to Visby. They were added as further defences midway between the taller towers (i.e., from 120 to 140 ft. distant from these, on either side), and must originally have been about twenty in number. But only eight now remain, the rest having fallen down—in most cases bringing the wall with them—owing to their unusual method of construction. This is aptly described by their popular name of Saddle-towers, their side walls being perched across and astride of the raised rampart for some 6 ft. above the summit of this. They are carried about half-way down the wall on either side, and rest upon large stone corbels. Like the other towers, these "saddles" are open at the back, and the battlemented face is supported by a wide arch built against the rampart wall. The effect is extremely picturesque, but the strain on the wall seems to have been excessive. So far as I can judge, all those that have

\*Extracts from a paper read before the R.I.B.A. on December 16th.



come down have fallen outside the wall, and their tendency to do this is shown by the fact that two of the remaining eight are buttressed up from the outside.

The one remaining tower of this type along the north wall was probably one of the latest built, and some care seems to have been taken to adjust the balance by increasing the projection of the side walls at the back and by making canted corners on the front. But even here a strong buttress has been built beneath the arch to prevent it from sharing the fate of the three others formerly along this side. Two of them fell in 1842 and 1866 respectively, making great breaches in the wall.

This later saddle-tower is more elaborate in construction than the others, but I do not think it is so picturesque. The simplicity of outline forms one of the most striking features of these bartizans. Another characteristic point to note is the absence of uniformity in the height, span, and form of their supporting arches. Most of them are pointed, but they are rounded in one or two of the smaller "saddles" on the east wall. The span of these is barely 20 ft., while those on the south wall measure 25 ft. These variations give rise to some interesting questions of construction, and I believe the explanation is to be found in a feature of the original city wall which was almost entirely obliterated by the work of raising and thickening done at this third period. That work included a strong buttress of fairly rough masonry built against the inner face of the wall, round the three landward sides, and supported upon a row of low pointed arches springing from the ground. These arches form another striking—and, I believe, unique—feature of the Visby ramparts, and in the references to them that I have come across in the guide-books of the place it seems taken for granted that they belong to this third period, and that the buttress was arcaded in this unusual fashion either to economise materials or possibly to provide space for storage.

The general effect in most parts—and specially inside the north wall—certainly suggests the impression of the arches being simply a part of the buttress, but various details, taken together, point to an earlier origin. I believe that the first city wall was provided on the inside—for a great part of its length at any rate—with a projecting ledge or platform from 2 to 3 ft. in width, supported upon a line of arches built against the wall up to a convenient height for looking out between the battlements.

The corbels supporting the front arches of the "saddles" are built in with the later masonry between the old battlements, and rest upon the lower level of these. So that this striking form of tower seems to have been suggested by the main features in the wall to be raised, and would necessarily be subject to certain variations corresponding with the breadth and height of the battlements, which are not uniform throughout.

The beginning of the fourteenth century found Visby at the zenith of its wealth and fame; the Queen City of the Baltic, guarded by its formidable circuit of rampart walls and towers. In appearance these would seem to defy all comers, and it is one of the ironies of Visby's history that they proved so useless when the robber King Valdemar of Denmark made his raid upon the treasure city in the year 1361.

There are moments, when the sun shines brightly upon that splendid line of ramparts, when you can fancy that they still screen the wonderful merchant city and

can read in wall and turret the glories of the past. But there are moments also when the desolation of the present is all that speaks from those grey, gaunt towers, as the twilight deepens, and the wind, whistling drearily through cracks and crannies, seems to echo the old Hebrew prophet's lament:

"They shall make a spoil of thy riches, and make a prey of thy merchandise; and they shall break down thy walls and destroy thy pleasant houses; and they shall lay thy stones and thy timber and thy dust in the midst of the water. . . . How art thou destroyed, that wast inhabited of seafaring men, the renowned city, which wast strong in the sea, she and her inhabitants, which cause their terror to be on all that haunt it!"

#### Discussion.

Mr. Axel Haig, proposing a vote of thanks, said he remembered Visby ever since he was a schoolboy, and he could confirm every word that Mr. Porter had uttered. In the course of some interesting reminiscences, Mr. Haig recalled how in his youth he had heard great and alarming noises, which were subsequently discovered to have been caused by the falling of portions of the great walls.

Mr. Geoffrey Lucas, seconding the vote of thanks, said he first saw Visby last July, arriving there from Stockholm about 5.30 in the morning in a bedless and hungry condition. In such circumstances it was only natural that the walls of Visby should appear to him somewhat unattractive. Having described his wanderings, Mr. Lucas referred to the Visby churches, which, he said, presented the only instance, to his knowledge, of mediæval work with a central column in the middle of the nave. This gave the effect of two naves, but actually it was only a peculiar system of vaulting. The fortifications, he had to admit, appeared to him to be rather amateurish constructions, revealing nothing of the science shown in the great fortified towns of France.

In the course of a few general remarks, Mr. Lucas said that the Scandinavian peasant was far from ill-educated; he was a landowner, with a voice in the government of the country, of which he was the great mainstay. Although the whole population of Sweden was less than that of London, wherever he had gone he had found plenty of people and no sign of unoccupied land. The small landowner was one of the characteristics of the race.

Professor Beresford Pite said that Visby, judging from its general appearance, might have been some unknown fort in an English town. The walls made no pretence to architectural style and there was very little detail. The whole subject was worthy of study, however, for what it taught with respect to directness of construction and suitability to purpose. It should not be forgotten, he concluded, that in London we still had a mediæval fortress and one of the few which were still kept in full fighting trim.

Mr. FitzRoy Doll emphasised the importance of Visby as the one-time headquarters of the Hanseatic League, the paramount mercantile organisation of the Middle Ages. Very few people realised what the Hanseatic League had done. To London alone it gave its municipal law, its money, and its guilds.

Professor Reginald Blomfield, in his summing up, said he thought that Mr. Doll had shot a very long bow in tracing the origin of London government ultimately to Visby.

Mr. Porter made a brief reply.

## COMPETITIONS.

### *New Building for the Faculty of Arts, Manchester University.*

Professor C. H. Reilly, the assessor in the above limited competition, has awarded first place to Messrs. Thomas Worthington and Son, of Manchester, whose design has now been approved by the Arts Building Committee. The building is estimated to cost £31,840.

### *Huddersfield Corporation Town-planning Competition.*

In the town-planning competition promoted by the Huddersfield Corporation for laying out four areas in the borough, seven sets of plans and designs were adjudicated upon by Mr. H. P. Boulnois, of London, whose awards are as follows: First prize, 100 guineas, Mr. Alfred Hill, architect, Huddersfield; second prize, 50 guineas, Messrs. W. A. Piercy, W. H. Beeston, C. B. Thomson, and Paul H. Solon, all of Stoke-on-Trent, who jointly sent in one set of plans and designs; third prize, 25 guineas, Messrs. Hart and Turner, Netheredge, Sheffield. The competition was open to architects and surveyors throughout the United Kingdom. Towards its cost Sir William Raynor and a few friends contributed £100.

### *Two Essay Prizes.*

The Council of the Society of Engineers (Incorporated) may award this year a premium of books or instruments to the value of £10 10s. for an approved essay on "A scheme for the registration of engineers, including particulars concerning the registration of engineers in British colonies and foreign countries." The Council reserve the right to withhold the premium if the essays received are not of a sufficient standard of merit. The competition is open to all, but, before entering, application for detailed particulars should be made to the Secretary, 17, Victoria Street, Westminster. The last date for receiving essays is May 31st, 1913.

The subject given in 1912 for the essay in competition for the Henry Saxon Snell Prize of the Royal Sanitary Institute was "The Ventilating, Lighting, Heating, and Water Supply Appliances and Fittings for an Operating Room for a General Hospital." Ten essays were sent in, and they have been brought under the consideration of the Council. The adjudicators were Mr. Edwin T. Hall, F.R.I.B.A., Dr. Louis C. Parkes, and Mr. A. Saxon Snell, F.R.I.B.A.; and they had the advantage of the very valuable criticisms and suggestions made by Sir Frederick Treves, who acted as consulting referee. The Council have decided to divide the prize of fifty guineas, giving one half to Mr. John Darch, Wandsworth, and the other half to Mr. H. F. V. Newsome and Mr. John G. Cherry, Manchester, to whom a bronze medal of the Institute will be awarded.

### *Changes of Address.*

Mr. G. J. T. Stemp, architect, has removed from Cambrian Chambers, Cambrian Road, to 32, Stow Hill, Newport, Mon., to which address all communications should now be directed.

In consequence of a large increase in business, Messrs. William Moss and Sons, Ltd., reinforced concrete engineers, have moved from Queen Anne's Chambers, Westminster, to larger offices at 48, Bedford Row, W.C. The telephone number is Central 12488.



# CONCRETE AND STEEL SECTION.

## (MONTHLY.)

### ACTION OF ACIDS, OILS AND FATS UPON CONCRETE.\*

BY W. LAWRENCE GADD, F.I.C., M.C.I.

With regard to the mineral acids—*e.g.*, hydrochloric, nitric, and sulphuric acids—there is little to be said. Neither cement nor concrete will withstand the action of these acids, which decompose and dissolve the constituents of cement, even in dilute solution. Even a weak acid, like carbonic acid, has a distinct action upon cement, which, suspended in water, can be practically entirely carbonated by passing a current of carbon dioxide into it.

#### *The Action of Organic Acids.*

The action of organic acids, such as lactic and butyric acids, formed by the fermentation of milk or butter; tannic acid, occurring in tanning liquors; tartaric and citric acids, and acetic acid in vinegar or stale beer, is not so marked; but it is very probable that the whole of the series of higher fatty acids will be detrimental to concrete.

In most cases the action of the organic acids is confined to a combination with the calcium hydrate liberated when cement or concrete is gauged with water; but, as the organic lime-salt formed has no cohesive strength, the concrete must be deteriorated to a greater or less extent, depending upon the quantity of the acid and on its combining weight.

The tendency of organic acids to combine with carbonate of lime is much less than with hydrate of lime, and it follows that an acid which would be dangerous in contact with green concrete might be perfectly harmless in contact with old or indurated concrete. Thus, stale beer has a distinctly detrimental action upon new work, but once the concrete has indurated by exposure to air for some time, the acid of sour beer has little action upon it.

Fresh beer has, itself, a weakening action on green concrete, but the deterioration in this case is due to the sugar and other organic constituents of the beer, and not to the action of beer acids.

#### *Sulphuric Acid.*

One of the commonest forms of acid action to which building material is subjected is that of sulphuric acid, derived by oxidation from the sulphurous gases present in the atmosphere of large towns. This is noticeable on Portland stone, of which many buildings in London are constructed. It appears to be less marked on concrete buildings, possibly for the reason that the surface pores of concrete become closed with a deposit of calcium sulphate, which affords protection from further action of the acid.

#### *Lactic Acid.*

Lactic acid is produced by the fermentation of milk, brought about by the micro-organism *Bacterium lactis*, and is a possible acid to come in contact with concrete structures in farm buildings. The action of this acid is confined to combination with calcium hydrate, forming cal-

cium lactate ( $\text{Ca}(\text{C}_3\text{H}_5\text{O}_3)_2 + \text{H}_2\text{O}$ ). This salt is soluble in water, and in wet situations would be readily leached out of concrete in which it were formed, so that the deleterious effect of lactic acid would consist in the gradual removal of the lime hydrate, which plays an important part in the induration of concrete. For practical purposes, it is probable that this action would be very small.

#### *Tannic Acids.*

Concrete vats would appear to be suitable for tanning operations, and the possible action of tannic acid becomes of importance. This acid, of which gallo-tannic acid ( $\text{C}_{14}\text{H}_8\text{O}_9$ ) may be taken as a type, is again an organic acid which combines with calcium hydrate to form calcium tannate, but as the combining weight of tannic acid is high—sixteen parts by weight combining with only one part of calcium—the probable action is not very serious.

Test pieces gauged with tannic acid solution gave lower tensile and crushing strains as compared with pieces gauged with water, but the difference is not sufficient to mark any great deterioration.

#### *Oils and Fats.*

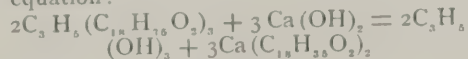
Proposals have of late been made, particularly on the other side of the Atlantic, to incorporate a certain small amount of oil or fat with concrete, with the object of giving the same dustless, waterproof, and other qualities. What we might almost call the natural instinct of the concrete worker has, however, always led him to avoid oil or grease as far as possible, and he has been right. Whether we accept the crystallisation theory, or the colloidal theory of the setting of cement, the presence of oily matters must interfere with the process of setting, even assuming that the oil has no chemical action with the constituents of the cement. Furthermore, oil does not readily mix with water, and has a tendency to collect in globules, which, however small, are a source of weakness to the concrete.

Many oils and fats react chemically with the cement constituents, and in this class must be placed the whole of the oils and fats of animal or vegetable origin.

These substances consist of the glycerides of various fatty acids, such as stearic, palmitic, and oleic acids, although the acids may be present in the free state, as for instance, in palm oil, which may contain from 50 per cent. to 80 per cent. of free acids calculated as palmitic acid.

The glycerides of the fatty acids, which constitute the neutral oils and fats of animal or vegetable origin, are readily decomposed, or saponified, by certain metals and metallic salts, and by all alkalies, including calcium hydrate, which we know is a constant product in cement or concrete which has been gauged with water. The result of this saponification is the decomposition of the oil, with the formation of a metallic or alkaline salt or soap and the liberation of glycerin.

Thus, tallow is saponified by calcium hydrate, according to the following equation:—



Tristearin (tallow) + calcium hydrate = glycerin + calcium stearate (lime soap).

Calcium stearate is a whitish, friable material, insoluble in and immiscible with water; whilst the lime soaps of other fatty acids commonly occurring in oils and fats are slimy and sticky substances which, although water repellents, do not, so far as my experiments show, render concrete less permeable to water and decidedly reduce the tensile and crushing strength.

By this process of saponification, which takes place rapidly under the influence of heat and more slowly in the cold, cement or concrete will certainly be injured by the admixture of any animal or vegetable oil or fat; and if the concrete be green or new, there is some liability of damage being done to it by mere contact, such as might occur from constant drippings of oil upon it.

Calcium carbonate has not the power to saponify neutral oils or fats, so that oil in contact with indurated concrete, in which the calcium hydrate has been largely converted into carbonate, would have little deleterious action.

Mineral oils and greases, which are hydrocarbons, are of a different constitution from that of the animal and vegetable oils, and are incapable of saponification. They have, therefore, no injurious action from this particular cause, although they weaken the strength of concrete for physical or mechanical reasons.

The results of tests show that the vegetable and saponifiable oils cotton-seed and colza are absolutely destructive to concrete, and that the mineral oils, which are not saponifiable, reduce the strength very materially when mixed in small proportion with the mortar. The strength at twelve months is less than at six months in the cases of cylinder oil (mineral), lard (animal), and colza oil (vegetable).

When testing samples of cement for tensile strength, which is commonly done now by users, I have observed that many operators use colza oil for the purpose of greasing the briquette moulds. The film of oil which remains, or should remain, on the moulds is, of course, very thin, but colza oil cannot be considered a suitable oil for the purpose, seeing that it has so great an action upon cement. Briquette moulds should be oiled with mineral oil or a mixture of heavy mineral oil and paraffin.

#### *Oil-Mixed Concrete.*

In order to test the waterproofing qualities of oil-mixed concrete, flat slabs of similar mixtures to the above were made in a standard manner, and, after twenty-eight days, were submitted to percolation tests by subjecting them to a water pressure of 50 lbs. per sq. in., in such manner that the water forced through the slabs could be collected and measured.

The addition of lard, colza, and cotton-seed oils to the extent of less than 2.5 per cent. on the weight of the concrete prevented the slabs from setting properly even after twenty-eight days, and they were unable to withstand the water pressure placed upon them.

In order to test the effect of oils upon concrete gauged with water in the usual way a number of briquettes was prepared,

\* Extracts from a paper read at the twenty-ninth ordinary general meeting of the Concrete Institute.



consisting of four parts of ordinary building sand to one part of cement; and after twenty-four hours in moist air these were immersed in various oils for periods of one, three, six, and twelve months, at which dates the tensile and crushing strengths were ascertained.

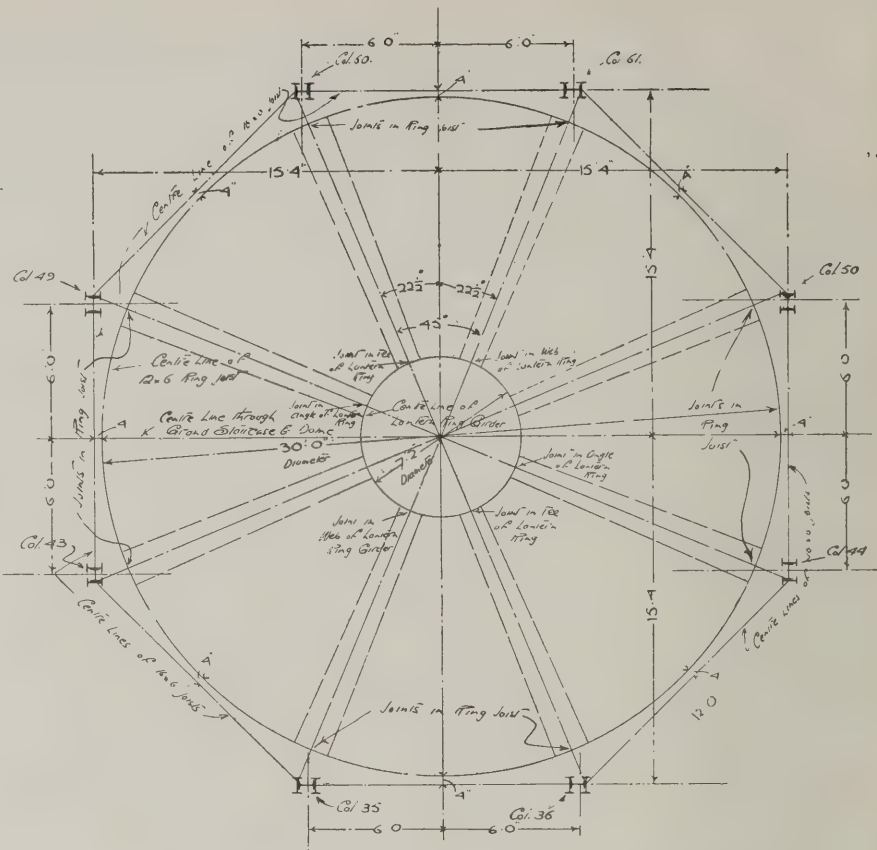
These tests again bring out the destructive action of saponifiable vegetable oil, the test pieces immersed in cotton-seed oil being reduced to mud in less than three months; and although the mineral oils and turpentine had much less marked effects, they nevertheless materially reduced the strength of the concrete immersed in them.

The conclusions the author draws from theoretical and experimental data are:—

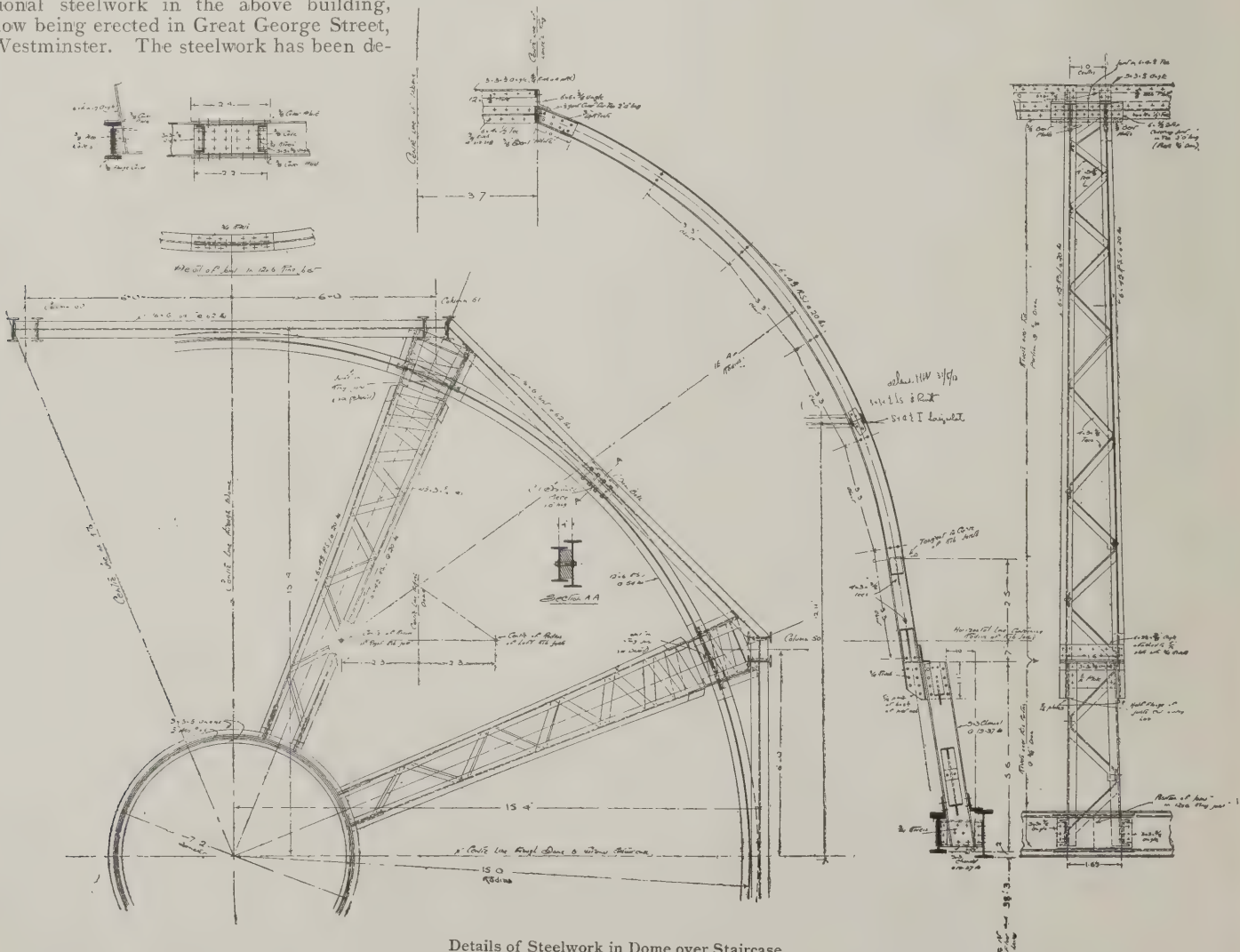
1. That the addition of oil or fat, of any kind, to concrete results in a weakening of the strength.
2. That animal and vegetable oils have a direct action on green concrete, and in time will bring about its destruction.
3. That indurated concrete is less liable to be attacked by oils and fats.
4. That oil-mixed concrete is not rendered more waterproof. The least permeable concrete is, in my opinion, a dense mortar in which the aggregate is properly graded to fill the voids.

CONSTRUCTIONAL STEELWORK AT THE INSTITUTION OF CIVIL ENGINEERS.

The accompanying illustrations show some interesting portions of the constructional steelwork in the above building, now being erected in Great George Street, Westminster. The steelwork has been de-

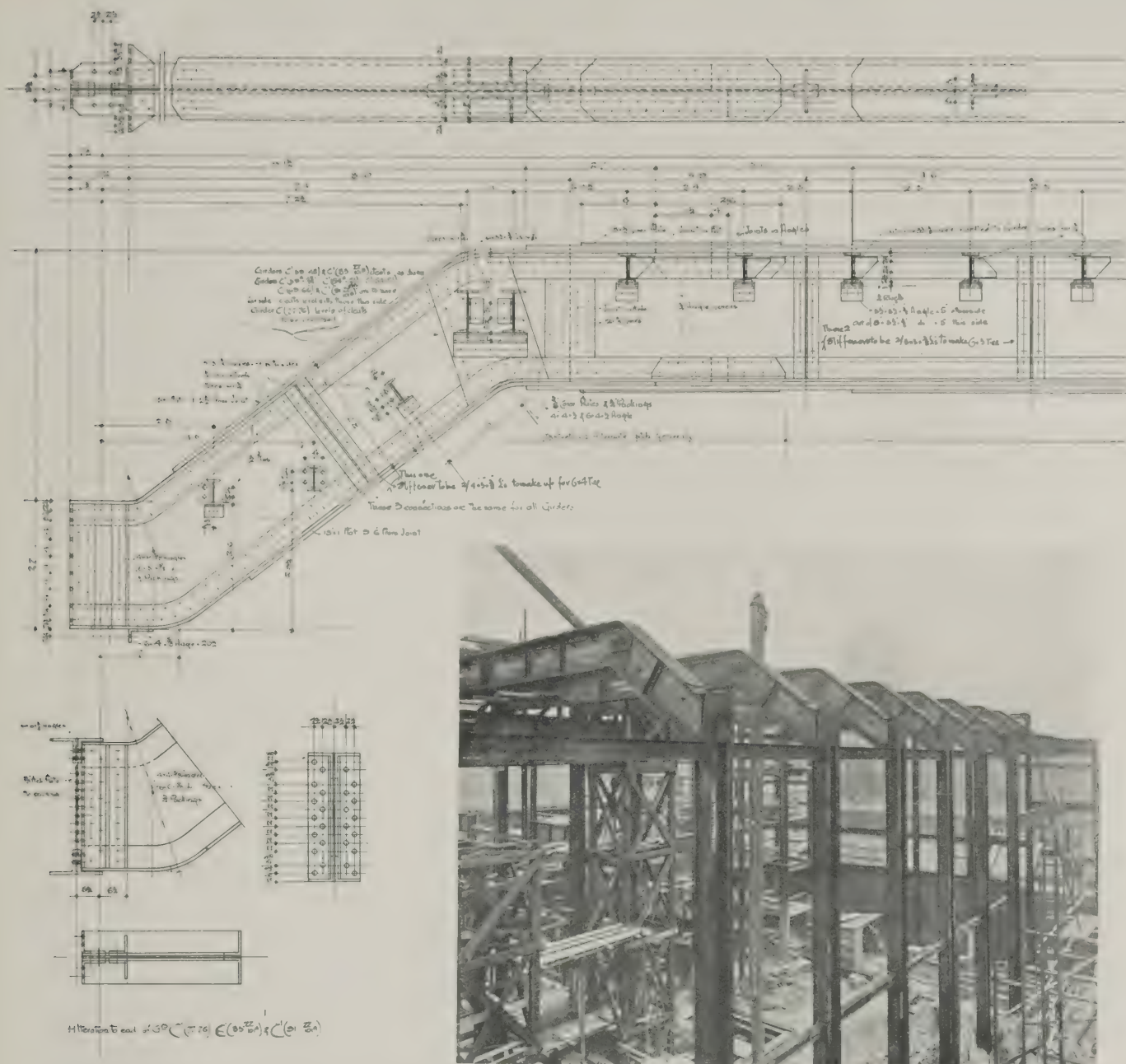


Dome over Grand Staircase. Key Plan showing arrangement of Ribs.



Details of Steelwork in Dome over Staircase.

NEW BUILDING FOR INSTITUTION OF CIVIL ENGINEERS, GREAT GEORGE STREET, WESTMINSTER.



STEELWORK IN NEW BUILDING FOR INSTITUTION OF CIVIL ENGINEERS, GREAT GEORGE STREET, WESTMINSTER.

signed by Messrs. Hudleston and Vigers, the consulting engineers, and made and erected by Messrs. Archibald D. Dawney and Sons, Ltd.

The whole weight of the walls and floors is carried by the steelwork, and, in consequence, many of the girders and stanchions are of a very heavy type. Each storey of the building is supported independently of the rest, the total load being carried down to the concrete foundation raft by 102 stanchion legs of 101 different sections.

The total weight of the steel delivered is about 1,250 tons. The building contract is being carried out by Messrs. Mowlem and Co., Ltd.

## REINFORCED CONCRETE DESIGN.

The majority of professional men in this country, not having the same need of bilingual or trilingual proficiency that prevails in countries with contiguous frontiers, are unable to study the records of Continental research as readily as could be desired. For this reason they have all

the more cause to be grateful to those who undertake the tedious work of converting valuable matter into clear, readable English, employing the English technical terms and units of measurement. Such a task affords the minimum of kudos to the translators, and should be heartily supported by their less energetic professional brethren.

Considerable care has evidently been exercised by Mr. Martin in translating the invaluable Reports of the French Government Commission appointed to collate information upon which an Official Code of Regulations could be based.

The various Reports of the Commission, which sat from 1900 to 1906, and carried out its work with admirable scientific precision and thoroughness, are necessarily abridged; but the parts selected for inclusion have been so carefully chosen that the work before us may be considered as being for all practical purposes equal in value to the voluminous originals. Students of reinforced concrete have an opportunity of studying in ordinary English measurements a wealth of carefully compiled data, intelligently analysed and based upon exact experiments and tests.

At the present time, when the proposed L.C.C. Regulations are under discussion, it is especially important to have means of ready reference to the researches upon which many of them are based.

The translator makes no comments either upon the experimental data or upon the Articles of the Code. In a future edition some such critical analyses might add to the value of the book. For instance, it might be as well to point out that the table of relative strengths of columns for different conditions of end fixing on page 17, Article 12 of the Code, which also appears unfortunately in the R.I.B.A. Reports and the L.C.C. draft Regulations, is an incorrect application of Euler's or Rankine's formula. Only very slender columns vary in strength inversely as the square of their difference in length, and to apply that relation indiscriminately to all columns is obviously unworkable. The French Regulations for wind pressures on bridges and buildings (pp. 100 and 112) are also scarcely in accordance with our present knowledge. A pressure of 55 lb. per square inch, equivalent to a velocity of over 130 miles per hour, has long been regarded as obsolete, and the method of de-



ducing a wind pressure normal to a roof surface by multiplying a horizontal pressure by the size of the angle of slope has been disproved by the National Physical Laboratory investigations.

The use of the standard English notation throughout would also considerably reduce the labour of studying a valuable and interesting work.

\* "The Properties and Design of Reinforced Concrete." By Nathaniel Martin, A.G.T.C., B.Sc., A.M.I.C.E. Constable and Co. 9 ins. by 6½ ins., price 8s. net.

## STRUCTURAL DESIGN.

A professional text book which gives even a remote impression of hurry or carelessness can scarcely be regarded otherwise than with suspicion. In the American work under review the reader will find so many and such obvious indications of over speedy production that any degree of confidence is impossible.

Owing to the fact that the author presupposes an extensive and accurate acquaintance with the principles of structural design in the readers, his matter is confined mainly to descriptions of tools, materials, erection, etc., much of which must necessarily be quite well known to his readers, whilst those calculations which are included can only be followed with difficulty in the absence of explanations.

Even though the descriptions of workmanship fail to come up to English standards (the "typical" matching of rivet holes on page 108 will scarcely aid American bridge builders), the author's strange literary style would have sufficed to make the matter sufficiently interesting whether we agree with him or not.

When we find casting described as "the pouring of molten iron or steel into a space formed by burying (sic) in sand a piece of wood called a pattern and then withdrawing it" (page 25), or read that, "For the thicknesses for sheet steel the United States Standard Gauge is used. Unfortunately, there are several different standards, no two of which are alike" (page 23), or that "Stress due to own weight of horizontal or inclined riveted section can be quite nicely taken care of by giving connection such an eccentricity that its moment balances that of the weight" (page 160), or "Cracks in the plastering of dwelling-houses are largely due to unequal settlement caused by placing the studs (of stud partitions) on the top of joists instead of passing between them" (page 37), it is difficult to stop reading. But what can be said for a book which calculates the safe tension in a halved, spliced, and bolted joint in an 8 in. by 8 in. timber at over 20 tons (46,800 lb.), finishing the calculation with a joyous O.K. (page 48), or, on the other hand, calculates purlins 7 ft. apart and 13 ft. span in an ordinary slated roof at 10 in. by 10 in.?

The book conveys an impression of American engineering methods which we should certainly hesitate to accept.

Many of the illustrations would be improved by thorough revision. Details of bolted timber joints with bolts passing through the plane of the joint, or even crossing each other at right angles, ought never to have been allowed to appear in a serious text book; and even the most cursory revision should have discovered that elementary "howler," the small box section with inside angles (page 164).

When, however, one finds that the only

typical section selected to illustrate large box struts is the actual section which failed in the Quebec Bridge, it would almost seem that the only course is to treat the whole book as a jocular libel on American engineering.

Elements of Structural Design. By Horace R. Thayer, Assistant Professor of Structural Design, Carnegie Technical Schools, Pittsburgh. 6 inches by 9½ inches, 6s. net. Constable and Co., London. Copyright by D. van Nostrand Coy.

### *A Monster Garage.*

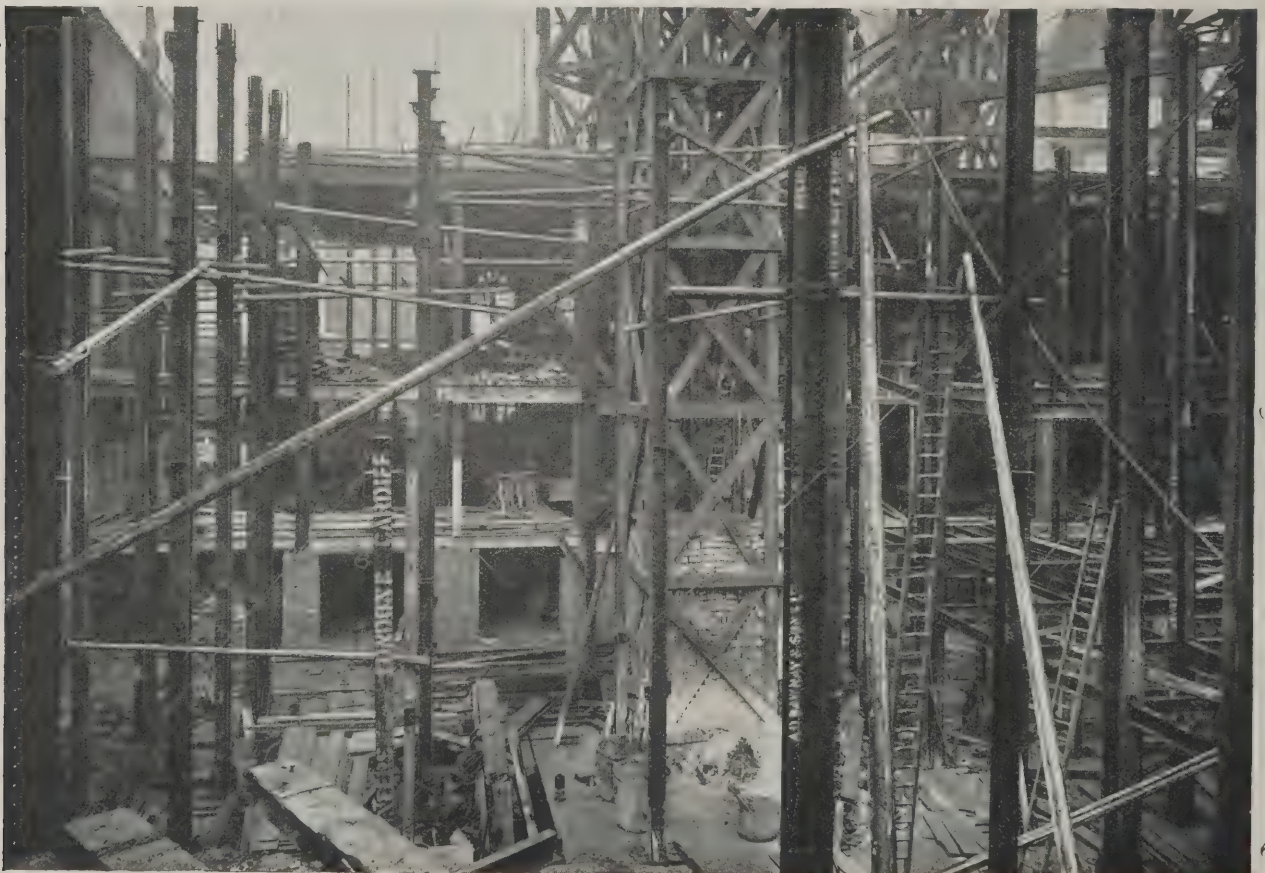
The garage (said to be the largest in the world) which is being built at Willesden Green for the London General Omnibus Company occupies 59,631 superficial feet of land, and will accommodate 145 motor omnibuses. The floor is of smooth concrete and the roof is of glass.

### *The Star and Garter, Richmond.*

Extensive alterations and considerable additions are to be made to the historic Star and Garter Hotel at Richmond, Surrey, at a cost of about £40,000. About 250 rooms are to be added, the grounds are to be newly laid out, and the pavilion is to be converted into a luxurious restaurant.

### *River Trent Protection Works.*

The City Corporation of Nottingham has accepted the tender of Messrs. Gibbons and Turner, of Nottingham (licensed contractors for the "Piketty System" of reinforced concrete), for the execution of the above works, in accordance with the plans of Mr. Arthur Brown, M.I.C.E., city engineer. The whole of the work is to be carried out on the "Piketty" system of reinforced concrete construction.



NEW BUILDING FOR INSTITUTION OF CIVIL ENGINEERS, WESTMINSTER: GENERAL VIEW OF STRUCTURAL STEELWORK IN COURSE OF ERECTION.



## BILLS OF QUANTITIES FOR REINFORCED CONCRETE.\*

BY JOHN M. THEOBALD, F.S.I., M.C.I.

THE forms of contract under which reinforced concrete construction is carried out are, as far as my own experience extends, four in number:—

1. The "lump-sum" contract in which the contractor undertakes to erect the building for a stipulated amount—no mention being made of the method of dealing with any variations that may be made during the progress of the work.

Anything in the nature of a "lump-sum" contract of this description is, in my opinion, most unsatisfactory. As I am dealing more fully with this particular form of contract under the next heading, I will merely mention that, unless a surveyor be employed, the contractor's account for extras has apparently to be accepted—his original priced bill of quantities not being accessible, presumably, without his permission. This form of contract would not be entered into in the case of an ordinary building, and I fail to see why any exception should be made in favour of reinforced concrete.

2. The "lump-sum" contract in which the bills of quantities do not form part of the contract, but the contractor undertakes to deposit a copy of his priced bill of quantities, which, as regards prices only, is to form a basis for arriving at the value of any extra or omitted work.

In a large reinforced concrete job upon which I was recently employed under this form of contract there were various mistakes in the bills of quantities—both for and against the building-owner—with which I was, of course, precluded from dealing, and one of the parties to the contract—I emphatically decline to state which—profited thereby.

I need hardly say that I am using this case solely to illustrate my point—the unfairness of the "lump-sum" contract—and not with a view to emphasising the possibility of errors in the quantities. Everybody makes mistakes, quantity surveyors among the number; but in cases of error in the original quantities, the disability under which one or the other of the parties to this form of contract is placed is so obvious that I cannot understand why it is ever entered into. In a few cases, of course, there may be some reason for so doing, but, speaking generally, I can find no argument in its favour.

3. The "lump-sum" contract in which the bills of quantities form part of the contract.

This form of contract has none of the disadvantages of the two previous examples. It is certainly fair to both employer and contractor, provided a competent surveyor is employed, but it relieves those responsible for the bills of quantities of all liability for their accuracy. If, however, as I said before, this liability is never accepted, the criticism, of course, has no point.

4. The "lump-sum" contract in which the bills of quantities form a schedule only, and the entire building is remeasured.

My only comment on this form of contract is that, unless under circumstances where the erection of the building in the shortest possible period is of vital importance, it seems needlessly extravagant. It is quite possible, however, that the cost of

the initial and subsequent measurements may not exceed the alternative cost of the preparation of bills of quantities and measurement of variations. It is merely a question of fees, upon which wild horses will not induce me to touch!

If, however, I urge the employment of a fully qualified quantity surveyor for the preparation of quantities for reinforced concrete, I do so even more emphatically when we arrive at the question of variations.

It is apparently not usual for the concrete specialists, who prepare the original quantities, to settle the extras and omissions at the completion of the contract. I hasten to add that I am speaking from my own experience only, and if I am wrong in my conclusion, I shall doubtless be corrected. If I am right, I can only congratulate them on avoiding a tedious and often unpleasant job. The measurement of variations—I am again speaking personally only—is an acquired taste even when dealing with one's own bill of quantities, but in reinforced concrete, unless under these circumstances, it is anathema.

Quantity surveyors, from bitter experience of variations, have learnt to "take off" with a wealth of detail which would probably surprise you if you were to take the trouble to wade through their dimensions—a fate to which I would not consign my worst enemy. You would find that, whereas to the uninitiated the description of the item itself is comprised in half a line of utterly unintelligible abbreviations, a further two or three lines are taken up by a description of the particular portion of the building in which the item occurs.

Engineers, by the very reason of their profession, are not in a position to take off the quantities for their work. The methods of the modern quantity surveyor are the outcome of three, if not four, generations' knowledge of the theory and the practice of his profession, and it has probably taken him between seven and ten years of constant application to acquire it. The education of an engineer—with which term I, of course, include the specialist in reinforced concrete—is even more arduous, and the exercise of both professions in the person of one individual requires a Superman!

In making the following suggestions as to method of measurement, I want it to be clearly understood that I am not laying down any hard-and-fast rules.

In the first place all concrete and centering should be kept separate on the various floors.

The concrete in walls, floors, beams, stanchions, stairs, etc., should also be separated. I do not consider it necessary to further subdivide the concrete. The stanchions, for instance, if octagonal, circular, or circular on square—the beams if tapering—the stairs if flewing—do not entail an additional labour (I am speaking, of course, of concrete only), and there is, therefore, no object in further separation.

It is when I come to the question of centering that the present system of preparing bills of quantities leaves most to be desired.

The prices of concrete and reinforcement are easily arrived at, and vary but little. From my point of view the centering is by far the most difficult item for a contractor to price, and it is, therefore, abso-

lutely necessary that the description should be as full as possible and every variation and labour either measured or described.

Commencing with wall centering—if circular it should be so described and the radius given. Then, with regard to the vexed question of deduction for openings. I believe, unless very large, it has hitherto been the custom to assume the centering went across the openings and, consequently, to ignore them. These openings should be deducted, and a numbered item taken of centering to openings of various widths and heights—averaged where similar in size, *but not otherwise*. This item I have seen measured per foot run, but, as the chief cost is that of maintaining the supports of the wall centering in which the openings occur, it is essential that the contractor should have the actual sizes—an average of the same would be incorrect because misleading.

Floor centering, of course, needs no discussion. I would only mention that all raking, or circular cutting and waste should be measured. The centering to beams should be measured per foot super—circular being, of course, kept separate including all cutting at angles—etc. If the beams are splayed on bottom edge, I should measure either "Extra labour forming splay blank width on edge of beam casing"; "Angle fillet blank width and fixing on edge of beam casing to form splay"; or, take the item "Including all splayed edges"; the latter, however, I consider unsatisfactory.

If the beams are irregular or unusual in shape, I should keep the centering separate and give a sketch.

The centering to small beams, say, 18 in. girth and under, I should measure per foot run.

The centering to columns and stanchions should be measured per foot super, every variation in the shape being kept separate and fully described. I prefer to include all cutting in the description, but it can, of course, be measured separately, though I see no object in doing so.

All extra labour, such as from octagonal to square, I should number as "Extra over centering for —" giving a full description.

Centering to stairs should be measured per foot super, as "Centering to sloping soffit of stairs." If "flewing" it should be measured separately.

All edges of concrete floors, well-holes, sides of steps, etc., should be measured per foot run, giving the thickness, but if 12 in. thick or over per foot super.

I need hardly say the description of all centering should include for all necessary strutting up from floor below or otherwise supporting.

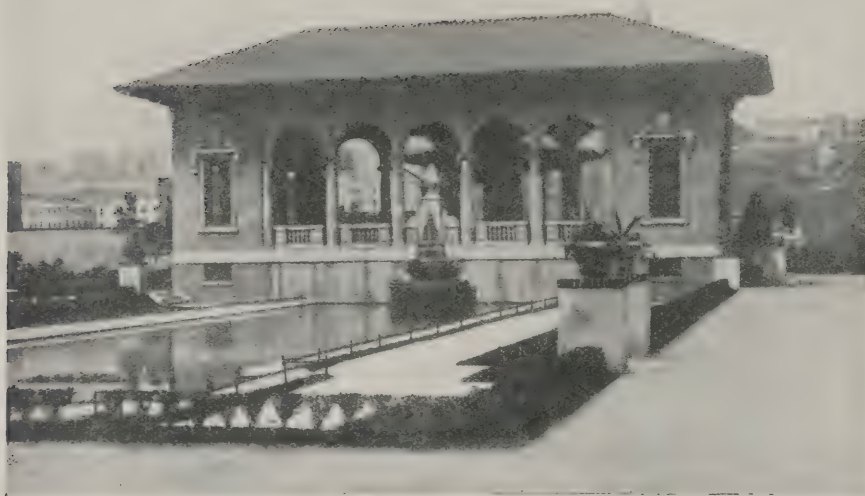
The steel reinforcement being only of light bar, I do not think it necessary to separate the various weights on each floor. As, however, the prices of the bars vary according to size, I should, until experience taught me which sections could be added together, keep them all separate under a heading something like this:

The following in bar-steel reinforcement and hoisting and fixing at various levels (not exceeding blank feet from the ground).

With regard to the question of bends, hooked ends, etc., I am of opinion that, where the bar reinforcement is of suffi-

\* Extracts from a paper read at the twenty-eighth ordinary general meeting of the Concrete Institute.





CONCRETE PAVILION IN HOBOKEN PARK, N.J.

ciently small scantling to be bent cold, they can be fairly included in the description, the labour being so small that, if numbered, they are likely to disproportionately increase the price of the steel. Where, however, they have to be forged, they should be numbered. Stirrups and ties should be numbered, giving the diameter and length of the wire.

I think it would be advisable, at the commencement of the bill, to describe such of the methods of measurement as might be open to misconstruction by the contractor, as, for instance, that all window openings have been deducted from the wall centreing. This will probably only be necessary for a short time; but until contractors have got used to our methods of net measurement, I consider that any information tending to lessen the risk of misunderstanding is wisely given.

### A CONCRETE GARDEN PAVILION.

The Americans are constantly demonstrating the architectural possibilities of concrete, the most refined of the more recent examples being a scheme of playground structures erected in Hudson County Park, Hoboken, N.J., from the designs of Mr. Arthur Ware. The scheme includes a recreation pavilion and band stand, a bath house, and a swimming pool. We reproduce a general view of the pavilion and a detail view of the concrete fountain from the outside. The approximate cost of the pavilion and the band stand, together with the lily pond and all the embellishments about it, was \$18,199.50 (about £3,800), and it has been computed that if the work had been carried out in limestone, even at a moderate estimate, the cost would have been more than trebled. No loss of sharpness in the detail has resulted from the use of concrete. Cast cement concrete ornaments when taken from the moulds may, by a little hand-tooling, be brought to the perfection of natural stone, the extra cost involved being comparatively slight.

In the case of the present buildings, models were first prepared in clay, not only for all the purely ornamental pieces, but also for such moulded work as columns, bases, balusters, balustrade caps, etc. The casting moulds for the purely moulded parts were made in plaster, and for the ornamental portions in gelatine. The concrete mixture used was Franklin

sand (a crushed white granite with considerable grit) and Atlas Portland cement, mixed in the proportion of two of sand to one of cement. In the column shafts and in some of the larger parts of the buildings some coarse building sand was used, mixed with granite sand. The shafts of the columns were cast in plaster moulds in place. All the ornamental work on the fountain is reinforced with iron rods, the cherubs being also reinforced and anchored to either side of the vase. The

two basins at the foot of the fountain, which are cantilevered from the building by "I" beams and heavily reinforced with iron rods and twisted wire mesh, were moulded in position in plaster.

The lower portions of the walls of the buildings are of concrete, the upper walls being of hollow terra-cotta tile, covered with rough-cast stucco. The floors are of reinforced concrete slabs and the roof is covered with dull, kiln-run, unglazed red Spanish tiles. Certain parts of the building, such as pediments to windows, window sills, architrave mouldings, etc., were cast on the premises and let into the wall. The lily pool is constructed with concrete sheets 8 in. to 10 in. in thickness, reinforced with heavy galvanised iron wire with rods placed at 2 ft. intervals. Inside the pool is waterproofed with five-ply felt and tar waterproofing, over which is a 3-in. wall of concrete, which, in turn, is covered with  $\frac{3}{4}$  in. of waterproof cement.

### A Royal Floor Polish.

Messrs. Ronuk, Ltd., proprietors of "Ronuk" sanitary polish, have had the honour to receive a Royal Warrant of appointment to Her Majesty Queen Alexandra.

### New President of Institute of Sanitary Engineers.

Mr. Percy Boulnois, M.Inst.C.E., has been elected president of the Institute of Sanitary Engineers for the present year. He will deliver his inaugural address on January 20th at Caxton Hall, Westminster.



DETAIL OF CONCRETE FOUNTAIN, HOBOKEN PARK.

(The columns were cast *in situ* in plaster moulds, and other parts in gelatine moulds: afterwards hand-tooled.)



THE  
ARCHITECTS' & BUILDERS'  
JOURNAL.

Wednesday, January 8, 1913.

Volume XXXVII. No. 939.

No. 15.



*(From Piranesi.)*





MARBLE GROUP OF "JUSTICE," NEW FEDERAL BUILDING, CLEVELAND, OHIO.

DANIEL C. FRENCH, SCULPTOR.

# THE ARCHITECTS' & BUILDERS' JOURNAL.

JANUARY 8, 1913.

CAXTON HOUSE, WESTMINSTER.

VOLUME 37. No. 939.

## *The Open Court of St. Catharine's, Cambridge.*

THE expansion of St. Catharine's College, Cambridge, has given rise to an unfortunate proposal for the erection of buildings across the fourth side of the beautiful quadrangle, which now stands open to the passer-by in Trumpington Street from under the trees.

The college buildings are a refined and scholarly example of the Renaissance architecture of the middle of the seventeenth century—mainly the work of Grumbold of Cambridge. A special beauty is the design of the open court, which is complete and unusual. The proportions are most satisfactory and the detail is delicate and ingenious. The court, which consists of the north, south and west buildings, is enclosed on the east side by a screen of wrought-iron gates and railings. The view of St. Catharine's Court clothed in its pleasant tones of brick and stonework through the screen in the foreground, is one of the characteristic inheritances of the Town and University of Cambridge.

The first consequence of the erection of a fourth side to the quadrangle will be the obliteration of this delightfully screened but unique view of the interior of a college court from the outside world, and the loss of a picturesque effect which has long been admired. A further consequence will be that almost the whole of the ancient buildings of the college will be hidden from view by the new block, which will fill in and form the eastern elevation, and will involve a result which we cannot think has been fully comprehended by the authorities, namely, that a modern extension will become the front of the whole of the college and will therefore deprive it in the public eye of the character and apparent virtue of an ancient historic foundation.

It must not be considered as wanting in respect to suggest that whatever the powers of the architect who may be employed for this thankless task, he will labour in vain and spend his art for nought of real profit or honour in designing a mask of St. Catharine's; for no modern work will compensate us for the concealment of the graces which we have so long enjoyed in her unveiled presence.

I will admit ungrudgingly that the necessity for enlargement is so urgent that it can no longer be evaded, and that the College cannot do otherwise than build forthwith; but I would point out that the proposal to block up the remaining space of the three-sided quadrangle is not only the cheapest and most obviously convenient, but also the naturally Philistine method of meeting the emergency, architectural and artistic sentiment being sacrificed as of insufficient importance when they interfere with supposed economy and convenience.

But, besides the imperfectly justified vandalism which will be inflicted upon the College and the University, I believe that this most obvious and ready solution of the difficulty of expansion is bad upon the two important grounds of economy and sanitation. It is at once false economy to extend within such con-

finer limits and it is bad hygiene to build up and enclose an open courtyard.

If it is suggested that the problem only presents the frequent aspect of a conflict between economics and sentiment, I would point out that the economical aspect is in fact a temporary phase, for the expansion to be dealt with is not likely to be determined and to cease with the provision of the limited addition which the new block will provide. The problem will recur in a few years, and the reasoning which now justifies the spoliation of the open court on account of the cost of acquiring an additional site will be then inapplicable, for it was merely as a temporary expedient that the courtyard was spoilt. The estimate of the value of the architectural integrity of the older work will remain in the more permanent elements of a brick and stonework monument to a narrowness of outlook and mistaken estimate of sentimental values.

This decision, founded as it is upon a mistaken estimate of the architectural and economical factors of the problem, is not only destructive of the artistic tradition of the building, but will be stultified by the normal expansion of the College.

With an optimism which may be inconvenient, we must reasonably anticipate a continuous growth which it is the duty of the authorities to foresee, even at the cost of the appropriation of an additional site.

Cambridge can furnish ample evidence that a residential college is limited in the number of its members, and in other aspects of usefulness, by the restrictions of its site. The proposal to build up the open side of the quadrangle proves that St. Catharine's has already fulfilled these limits, and that expansion is now incompatible with non-extension of the College site; it is manifestly false economy to attempt to rob yesterday to provide for to-day while altogether neglecting tomorrow.

It is not raising a side issue, on behalf merely of the outside interests of an architectural public, to question gravely the hygienic conditions which the proposed addition will vary and create. Have the manifest disadvantages of a closed quadrangle been considered as compared with those of the present open-air court? The great healthiness of the latter, with its freer circulation of air and access of sunshine, must be admitted. Cambridge may abound in insanitary precedents, sanctified only by their antiquity, but St. Catharine's with its open quadrangle is excellent, and it will be unscientific and hygienically wicked to reduce the ventilation and brightness of the three blocks composing the present court by degrading every window to an outlook confined within the four walls of a quadrangle.

The sanitary argument may succeed where æsthetics fail; temperament will succumb to temperature, and in civilised societies where the sanitary plea is well founded it prevails. This supremacy of hygiene over the sentimental considerations of tradition and of art generally involves some unhappy sacrifices, but such a misfortune is not always inevitable for a harmony of



sanitary and artistic proprieties demands the retention of the open court of St. Catharine's.

The College authorities doubtless decided, with misgiving and difficulty, to block up their quadrangle, and share much of the regret which this course will provoke. They probably feel impelled by prosperity to an unhappy fate. It cannot be with pleasure that they obliterate the charming architectural picture or hide their ancient historic buildings from view in order to appear before the world in a new-made mask, forfeiting their apparent old nobility; but I hope that fuller consideration of the shallow and temporary relief which the erection of the proposed insanitary block across the quadrangle will afford may decide all doubt, and that the scheme may be definitely laid aside in favour of a proper extension upon an additional site when healthy progress will not tread upon the skirts or mar the sweet architectural heritage of the past.

B. P.

#### Another Unsatisfactory Competition.

THE competition system, even when conducted on the best possible lines, has many deficiencies, but when the conditions violate the claims which architects have been urging for years past, the result must inevitably be deplorable. That many promoters still persist in the idea that competitors can be forced to conform to any conditions which are drawn up, and that provisions recognised by the profession as equitable and satisfactory may be left out of account, is still evident from the notices which the Institute not infrequently finds it necessary to issue, requesting members to abstain from submitting designs. The latest instance of this is the competition for workmen's houses at Wellington, Salop; the terms offered being a £10 premium, with no statement as to the appointment of an assessor, and no undertaking that the successful competitor would be given the work to carry out. The Shropshire Architectural Association protested, very properly, against these conditions, and pointed out that none of their members would compete under them: and in reply the hon. secretary, Mr. Frank H. Shayler, F.R.I.B.A., received a letter from the clerk to the Urban District Council, who said: "Now that the competition has been advertised and a number of architects all over the country have applied for copies of the particulars, and are, presumably, at work on the plans, I cannot see how any change can be made at this late hour, even should the Council be willing to do so. You must surely allow those who arrange the competition to draw up their own conditions, and you should not have any reasonable cause for complaint because those conditions do not fall in with the views of certain would-be competitors who desire to have the conditions altered to suit their personal views. I would remind you that the competition is not arranged for the benefit of competitors, but for the benefit of the Council. Whether the architects in the county (members of your association) compete or not is entirely a matter for themselves to decide. There is nothing in the conditions to lead anyone to suppose that the Council will not be advised by a competent assessor or adviser (if the Council thinks proper), but the ultimate result must be by resolution of the Council. You may, however, take it definitely that the Council has decided that it will not bind itself to employ the successful competitor to carry out the plans, nor even to carry out the plans at all."

This, of course, brings us back to the old position which has been fought over and over again. The only complete way of annihilating it would be if all architects were registered and were members of their societies; for then the promoters could get practically no designs submitted. We have not the conditions of this particular competition before us, but we have no doubt whatever that, the Shropshire Architectural As-

sociation having lodged a protest, the conditions are bad in essential requirements. The reply from the Urban District Council appears to be based on the familiar misconception that it is worth while for architects to enter a competition for the premiums alone: whereas it is common knowledge that, on such a basis, the time spent and expense incurred in preparing a set of competition drawings—to say nothing of the value of the experience embodied in them—are out of all proportion to the premium which is ordinarily offered. As to the last sentence in the letter given above, the phraseology makes it difficult to understand, but we assume it to mean that the Council will not bind itself to employ the successful competitor to carry out his own design, nor will the Council bind itself to carry out any others submitted; a usual statement which is excellent from the Council's point of view, but one which, in an open competition, is regarded by architects as a technical reservation only—it being taken for granted that, unless there is some very good reason for not doing so, the architect whose design is selected will be employed to carry out the work.

#### Regent Street Quadrant.

THE "Pall Mall Gazette" has lately evinced a great zeal to anticipate the contents of official reports. In the case of Delhi, it has yet to be proved that our contemporary was inspired so correctly as we have been asked to believe, and now we are given to understand that the select committee appointed by the Treasury to consider the rebuilding of Regent Street Quadrant (comprising the Earl of Plymouth, Sir Henry Tanner, Professor Reginald Blomfield, and Mr. John Murray) has "practically approved, with certain modifications," a design submitted to them by Messrs. John Belcher, R.A., and J. J. Joass, F.R.I.B.A. There is no official confirmation yet forthcoming, but from our own sources of information we have reason to believe that the statement is correct. For what follows, however, our contemporary is responsible, and we print it as being of great public interest, but without committing ourselves to the statements made: "These designs, we understand, are of a simple nature, and carry on the lines of the Piccadilly Hotel by means of flat pilasters, instead of the heavy columnar treatment that has been so much criticised. They include the premises of Messrs. Swan and Edgar, Messrs. Hope Brothers, the County Fire Office, and all the buildings, in fact, that are now nearly a century old, on both sides of the Quadrant. . . . There was some criticism at the time of the committee's appointment that the Regent Street tradesmen who are so closely concerned were unrepresented. The tradesmen, however, have had an opportunity of placing their views before the committee, and we understand that the designs that have been selected have their support. Mr. Joass has been working on the scheme for the past year or more."

Assuming that Messrs. Belcher and Joass have been selected for the work, we take it that Whiteley's new premises have offered the immediate example. It is quite certain that the treatment is excellent from the shopkeepers' point of view, and, under the conditions imposed, is perhaps as satisfactory as any other from the architectural point of view, for the reason that, though there are large areas of plate glass, there are also substantial piles and columns down to pavement level. For Regent Street Quadrant this treated treatment is the right one, but how it is to be fitted in without altering the Piccadilly Hotel front we cannot understand. The latter is admittedly not the ideal solution of the problem, and without taking away the ground floor arches and substituting the treatment to be adopted for the rest of the Quadrant, we cannot see that the result would be satisfactory.



## THE NEW FEDERAL BUILDING AT CLEVELAND.

THE new Federal Building in Cleveland is a good example of the type of official building now being erected in the United States; interesting, too, as being one of a group of monumental structures which it is the intention to erect at Cleveland.

The idea of grouping a number of public buildings around a single centre was first broached almost by accident some fourteen years ago by a local architect. It so happened that Cleveland was as a matter of fact almost wholly unprovided with monumental public buildings, while at the same time the city was growing sufficiently in population, wealth, and local pride to want a number of such buildings and to be able to pay for them. There was not only a Federal Post-office and Court-house to be erected, but a new City Hall, a County Court-house, and a Public Library were also needed. The idea of grouping all of these new public structures around a square, which would thus become the centre of the civic life of the community, although it was scouted at first, gradually took root; and, fortunately, it took root before any irretrievable mistakes had been made in the placing or design of any of the buildings.

In almost all American cities the business men have formed Chambers of Commerce for the purpose of promoting their joint interests in the growth and prosperity of the neighbourhood; but particularly of late years the Chamber of Commerce in Cleveland has been something more than a commercial and business organisation. Some of its more public-spirited members conceived the idea of making the Chamber of Commerce a civic as well as a business organisation. The work of the association was extended so as to include practically all the unofficial public activities, whose object was to make Cleveland a better as well as a busier city.

In August, 1903, almost six years after the idea had first been broached, a legally constituted Board of Supervision, consisting of Messrs. Burnham, Carrère, and Brunner, made its report, and within a few months this was officially approved by the municipal government, by the Chamber of Commerce, and by other local organisations. The commission proposed to include the Union Station in their scheme, and to close the square, or mall, at the lake end by a monumental passenger terminal.

The railroad companies have accepted the plans of the commission, and as soon as certain legal difficulties are overcome they are ready to build a monumental terminal from the design of D. H. Burnham and Co. A visitor entering the city will leave the station by means of a spacious mall, enclosed by handsome buildings representing every phase of Cleveland's public life. The County Court-house which flanks the beginning of the mall at the railroad end is already built. The City Hall, which balances the County Court-house in the general scheme, is being erected, and before it is completed there is a fair chance that the construction of the Union Station will be started.

The plans for Mr. Brunner's Federal Building had been accepted before any decision had been reached in respect to the group plan; and after that plan was adopted, certain changes in the architect's designs had to be made. The site bought by the Government included a whole block about 216 ft. square. This block faced the Public Square on one side and Superior Street on another. Before the group plan was adopted, the front of this building, which now faces the mall, bordered an insignificant street; and the original plans of the architect contemplated an open court on one side. The group plan necessitated, however, a building which would be conspicuous on all four sides, and, con-

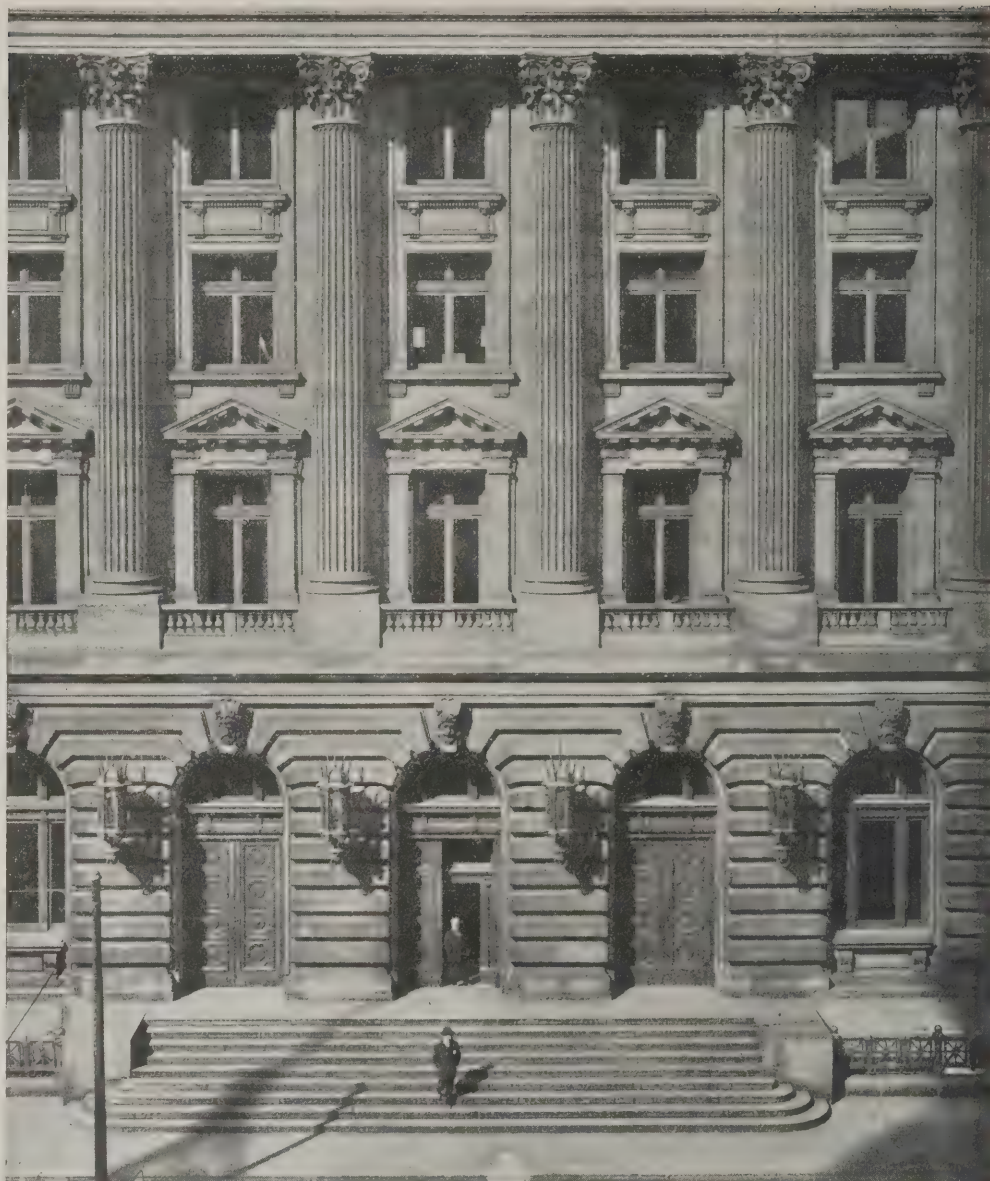


NEW FEDERAL BUILDING, CLEVELAND, OHIO. ARNOLD W. BRUNNER, ARCHITECT.



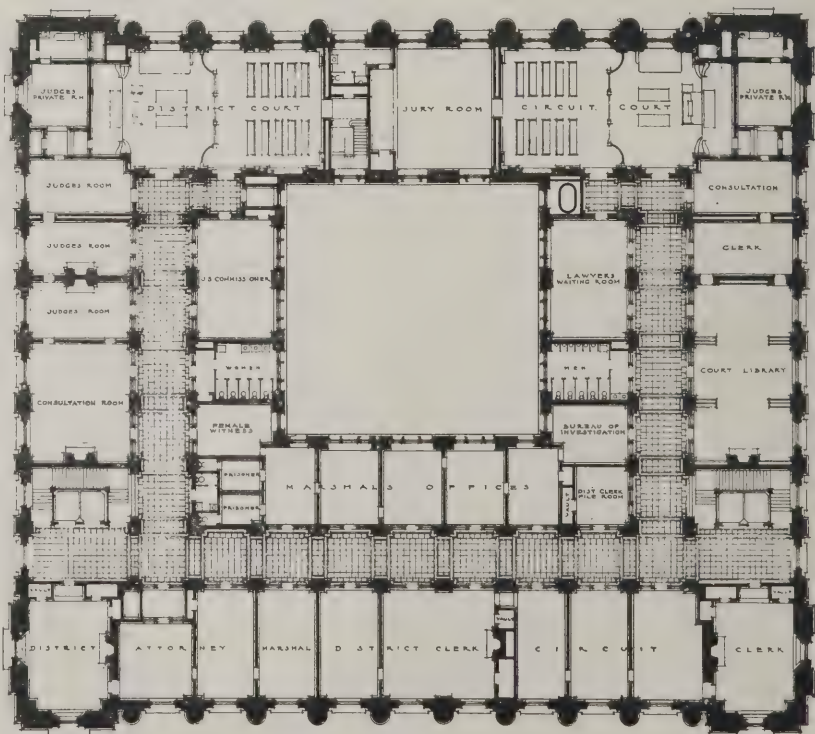
sequently, the architect was obliged to shift his court to the interior of the building. The fronts on Superior Street and on the proposed mall became the sides of the building on which a monumental effect was most important — a fact which explains the flatter treatment on the front facing the present Public Square.

In designing and planning the Federal Building, Mr. Brunner was confronted by a number of difficult conditions and conflicting requirements. In the first place, there was a fundamental conflict between the two different functions for which the building itself was to be used. Under its roof all the officials required by the work of the Federal Government in Cleveland were to find a residence. Primarily, it was to contain a post-office, but of scarcely less importance was the fact that it was also a court-house. But in addition to being a post-office and a court-house, it was an office building. Every department of the Government, except the Interior Department, has business to transact in Cleveland. Accommodation had to be made for a custom house for the Internal Revenue collectors; for Pension Clerks, the Immigration Department, Civil Service examining rooms, the War Department, the Hydrographic office, the Inspectors of Steamboats, the Geological Survey, and so on to the end of the list. Some of these departments required large offices and some of them small offices; but they all wanted primarily the convenience of an office building.



Detail of Façade.

By Courtesy of "The Architectural Record."



Second-floor Plan (Court Rooms).

NEW FEDERAL BUILDING, CLEVELAND, OHIO.



The conflict between the divergent requirements of an office building and a court-house comes out in the present instance in two different respects. Mr. Brunner was designing a monumental structure, but he was obliged to abandon any idea of an entrance or staircase adapted to the character of the building. Access to the court rooms was obtained by means of lifts. On the other hand, the monumental scale and character of the design in general involved certain drawbacks to the use of the building for office purposes. The scale of a monumental design necessarily involves a thickness of wall and a depth of window opening which interferes with the best possible lighting of the rooms; and such has been the consequence in the present instance. Mr. Brunner has done his best to minimise the inconvenience of ill-lighted offices by keeping his design as flat as was compatible with a generally monumental effect; but it is none the less true that the offices—even those on the corners with windows on two sides—are lighted in a manner which will cost the Govern-

ment an altogether unnecessary amount for artificial illumination.

In another respect Mr. Brunner was confronted, if not with conflicting, with some very trying conditions. One practical necessity of a post-office is a convenient place for the mail vans to be loaded and unloaded. No city wants its streets encumbered with these vans; and the consequence is that some provision has to be made on the site of a post-office for a mail-van court. When a site is purchased for a post-office, care should be exercised to buy enough land to include such a court. In the case of the Cleveland building no such care was exercised. Every square foot of the site had to be covered by the building in order to obtain room enough inside for the multitude of offices which were needed; and the architect was presented with the problem of providing a mail-van court on a site which had to be completely covered by the building itself. The expedient which he adopted was that of an interior court in the basement to which access was obtained from the street by means of sloping ways. The court thus obtained is abundantly large for its purpose, and it is so planned that the incoming mail is received on one side and is carried by elevators to the work room above. The outgoing mail is discharged by means of chutes at the other side of the mailing court, and is disposed of without interference from the other vans.

The fact that the building possesses a really monumental character is sufficiently indicated by the impression it makes on every attentive observer of being of moderate size, whereas in truth it is very large. Its ability to produce such an effect proves the design in mass and detail to be admirably scaled, and its success in this respect is an achievement for its architect, because he could not call to his assistance certain devices most useful to the designers of monumental edifices. He could not elevate his building above the street level or arrange for any sufficient approach. His entrances were necessarily insignificant, and only incidental to the general design. He was obliged, that is, to place a monument on the building line of a street; and he was only fortunate in the fact that his structure will eventually face public squares on two sides and a very broad thoroughfare on another side.

Throughout the building the architect has been very discreet in the use of ornamentation. He has obtained the effect of handsome substantiality, appropriate to Government edifices, chiefly by the skilful treatment of beautiful and costly materials. The main corridor on the ground floor is in this respect peculiarly successful. The beautiful lines of the domed ceiling, the walls, finished in such a rich, yet soft and sober material, are so effective that the architect has been able to dispense almost entirely with ornamentation.

It was an impression of this kind which Mr. Brunner has sought to make throughout the whole of the building, and for the most part he has succeeded. He has succeeded in general with his two court rooms, which are as well adapted for their purpose of giving the law an appropriate habitation as any the writer has seen in the States. These apartments have kept a warm and pleasant character without any loss of breadth and dignity; and in the district court room Mr. Blashfield's fine and well-placed decoration adds essentially to the general impression of distinction and elevation. Mr. Brunner would, perhaps, have been even more successful with these rooms in case he had reduced and simplified the ornamentation of the cornice and ceiling, but even there the excess of detail is not burdensome.

It will be seen from one of the illustrations here shown that a full-size model of a detail of the building, executed in "staff" plaster, was put up in order that the effect of the design might be observed *in situ*. If this excellent example were more commonly followed much disappointment would be avoided.

(To be concluded.)



FULL-SIZE MODEL (IN "STAFF") OF ONE BAY  
OF FAÇADE.



## HERE AND THERE.

THE name of T. G. Jackson among the Baronets in the New Year Honours list sets one thinking of buildings at Oxford and Cambridge, and more particularly of the work done during the nineteenth century. There is scarcely a college that has not had old buildings demolished and new buildings added to it, and as we walk along the High to-day or peep into the quads. from the medley of Cambridge streets, the fact is forced upon us that the colleges have suffered ill at the hands of modern architects. No doubt one could say a good deal against what was done at Oxford and Cambridge during the eighteenth century—think, for instance, of the destruction of old work which Essex was responsible for, leaving us in place of it the dullest “Italian” stuff, often in stucco; but it is the nineteenth century that fans our wrath, blowing it up into a great fire at the commencement, then letting it die down for a generation, after which we have to bear with the years of the Gothic Revivalists and the later men. Sir Thomas Jackson, among the architects of our own day, has been associated with new buildings in a score of colleges, more particularly at Oxford; and while there is a certain delightful air of picturesqueness about his work—like the new buildings in the front quadrangle of Trinity College—I must confess to a feeling of distaste for a style that handles Gothic and Classic motives in the manner of Jacobean days. Perhaps the happiest details of Sir Thomas Jackson’s designs are the tall lanterns that rise superbly over the roofs of the halls. There is a fine one over the Examination Schools at Oxford, and another over the High School—storeyed ranges of glass in wooden tiers, crowned by an ample flèche.

Of modern work at the colleges of Oxford and Cambridge there is, to my mind, nothing comparable for excellence with the late Mr. Bodley’s, or Mr. Garner’s, or both, for it is a strange puzzle for the outsider to distinguish exactly between the two. At Oxford, for example, what could be finer in its way than the new building at Magdalen, or at Cambridge than the noble block—unfinished—at King’s? It exhibits that rare ability to grasp the essential spirit of Gothic and at the same time to infuse it with fresh treatment; there is, too, a sort of scholarly grace about it which is both immediately captivating and permanently satisfying. Compare this Gothic with the dreadful work of Wilkins at Corpus Christi, or Wyattville’s at Sidney Sussex, or Rickman’s “bridge of sighs” and buildings in the new court of St. John’s—at Cambridge—or with Scott’s work in All Souls’, or Waterhouse’s at Balliol—Oxford—and it will be felt what honour should be paid to Mr. Bodley and Mr. Garner.

It is almost risking a platitude to say how fine the buildings of a city look at night as compared with their appearance by day; yet in the short days of winter we have particular occasion to notice this, and the remark is therefore opportune at least. Night, like snow, spreads a kind hand over many a building. The paltry commonplaces that annoy us in the daytime are lost in the half-light of night, when architecture takes on scenic, theatrical effects. There is a reversal of light and shade; the underside of sills and cornices, the depths of doorways, the recesses of windows—all in shadow in the daytime—are picked out clear and prominent in the light of the streets, while, a little apart from the lamps, a building here and there rises up in sheer mass. It is a fine sight to see a city at day-break—I recall the magnificent effect of St. Paul’s silhouetted sharp and jet black against the glimmering eastern sky—but night-effects on architecture are even more impressive. Those who have been there say that in New York it is awe-inspiring to see those great shafts, the skyscrapers, towering up into blackness—certainly Joseph Pennell has found inspiration in them

for some wonderful lithographs. But we need not go beyond London for some magnificent night-effects on buildings. A dozen instances come to mind, and the finest of them all is the Victoria Tower of the Houses of Parliament. Standing at night-time beside this mass of stonework, one gains an impression of almost superhuman strength, tempered with grace. There is, indeed, no other sight in London so noble as the Victoria Tower at night.

\* \* \* \*

The Hero as Divinity, the Hero as Prophet, the Hero as Poet, the Hero as Man of Letters—of these we find the very truth in Carlyle’s pages; and if that wonderful, crotchety old Scotsman had only known as much about architectural phases and fashions as he did about life in general, and literature in particular, we might have had a classic chapter on The Hero as Architect. For is there not a deal of hero-worship always to be seen in the world of architecture? At the present time an ardent sect sits at the feet of Cockerell and all that he stood for; and to them it is the glorious sight of a semi-god, with no hint of feet of clay. Another sect is ready to accept Wren or Inigo Jones as the complete exemplar, regarding their works almost as sacro-sanct: yet, to show how diverse opinions are, one has but to recall the statement in last week’s issue of this journal that St. Paul’s, though marvellous in conception, is a provincial church in comparison with the Pantheon at Rome, and that Inigo Jones’s Banqueting Hall is parochial in comparison with the Maison Carré at Nîmes. This is, indeed, the pulling down of one Hero and the setting-up of another. And it is, curiously enough, a periodic process. Just now there is growing fancy to set up a Neo-Grec Hero, and every indication that he will achieve a widespread homage. But will he, in England, withstand the years?

\* \* \* \*

To the record of architects’ achievements on the athletic field, recently set out in these columns, I have another to add: for a correspondent writes to inform me that Mr. L. A. Phillips, A.R.I.B.A., of Newport, Mon., has the following to his credit—Welsh International Rugby half-back for several seasons; county cricketer (Monmouthshire); mile championship swimmer; Welsh amateur golf champion in 1907, runner-up in 1908, and champion again in 1912. An excellent record, and I wish him as good a one in architecture.

\* \* \* \*

At Christmas I noticed in the correspondence columns of this journal a letter from a gentleman at Manchester, who, after taking Professor Adshead to task for saying that it is half a century since Barry employed Pugin to dress his Classic Parliament House with the romantic trimmings of a mediæval period—whereas three-quarters of a century would have been near the mark—proceeds to criticise some “recent disparaging strictures” on the architectural interest of Birmingham, which he lays to my charge. I take it all with humility, regardless of the taunt as to my being “not quite ubiquitous this time,” and despite the fact that the remarks never appeared under “Here and There.” But I cannot share his eulogy of New Street, though I could say a better word for the roof of New Street Station. The correspondent in question thinks there is “a good deal to be said for Birmingham and its externals as compared with its industrial compeers.” This, of course, is an affair of comparisons, which are odious; otherwise I might try to show that it is because the correspondent lives in Manchester that Birmingham appears to him to be so full of architectural glories.

UBIQUE.



## CORRESPONDENCE

*The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents.*

*Correspondents are asked to be brief and to write on one side only of the paper.*

*The Society of Architects' Scheme for Ateliers.*

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—Having now formulated their views and course of procedure, the Beaux-Arts Committee to promote improved methods of Architectural Training in Britain desire me to forward the following explanatory précis:

The Committee and Jury for adjudication include the following:

*Honorary Members.*

J. L. Pascal (Membre de l'Institut de France).

V. Laloux (Membre de l'Institut de France).

*Committee of Management.*

The Right Hon. Lord Saye and Sele.

Sir George Riddell (chairman).

\*Alph. Defrasse (President of the Société des Architectes Diplômés).

\*J. Godefroy (Vice-President of the Société des Architectes Diplômés).

\*Faure Dujarric (Logiste et Diplômé).

\*Arthur Davis (Médaillé, Ecole des Beaux-Arts).

A. R. Jemmett, F.R.I.B.A.

\*H. V. Lanchester, F.R.I.B.A.

\*Edwin L. Lutyens, F.R.I.B.A.

\*Charles Mewes (Logiste et Diplômé).

E. C. P. Monson, F.R.I.B.A.

\*A. Templier (Diplômé).

Percy B. Tubbs, F.R.I.B.A.

R. Goulburn Lovell, A.R.I.B.A. (hon secretary).

\*Members of the Jury.

It is intended to establish in the British Isles ateliers of architecture similar to those connected with the Ecole des Beaux-Arts. The French "Société des Architectes Diplômés par le Gouvernement" have given their patronage, while prominent patrons and students of the French ateliers, together with certain British architects, are actively co-operating in carrying this proposal into effect.

The object of the ateliers is to teach the principles of design which aim at the development of logical and imaginative architecture on the system of the Ecole des Beaux-Arts. As the atelier devotes itself solely to the study of architectural composition, such other knowledge as is necessary to the practising architect must be acquired by the student from the sources already existing for the purpose. It is therefore not intended to supplant existing educational establishments, but rather to supplement them.

It is generally admitted that the first and greatest school of architecture in the world is that of the Ecole des Beaux-Arts, Paris. Its pre-eminence may be recognised by the fact that nearly all international competitions are won by architects trained in this school, that its teaching is sought by students of all nationalities, and that its principles and methods have been adopted with the best results in America, where there are at present fifty-seven "diplômé" architects.

The Ecole des Beaux-Arts is largely dependent on the ateliers, in which the actual teaching of design is carried on, and in which the students learn the principles that underlie planning and composition, and acquire facility and experience in their application. It is intended, therefore, to adopt this feature of the Ecole, as its general methods and atmosphere have been proved to possess distinct advantages over other methods of teaching. It develops a spirit of comradeship and co-operation, and a general community of sentiment and ideals. This arises from the fact that the designs based on each student's first sketch are developed on certain definite principles in the atelier with the co-operation of the patrons and atelier comrades. The atelier as a whole takes a pride in each student's work, and for its own credit's sake assists him to lift it to the highest possible level.

It is intended that the traditions and methods of the ateliers in Paris shall be adhered to, so far as it is possible to combine them with English practice; the ateliers, however, will not attempt to insist on the imitation of French features and detail, nor to influence the student in this direction, being concerned more with the principles that govern these features than with the actual features themselves. As, however, it is recognised that only those who have been trained on the Beaux-Arts system for a sufficient length of time to grasp its principles and assimilate its atmosphere are competent to impart it, the direction will be in the hands of Beaux-Arts men.

Since the decay of the old traditions, which were followed by such men as Adam and Chambers, and which finally broke up at the time of the Gothic Revival, architecture in England has been passing through a period of chaos, indicated by a continued change of fashions, having no intellectual basis; during which period its fundamental principles have been generally lost sight of. While a few men of ability have, from time to time, been able (by sheer force of individual personality) to grasp its essentials, the majority have failed to do so, and the students have been left without any definite guidance in those principles which govern the art of architectural design.

Although much progress has been made in building up schools to replace the pupilage system, it is generally recognised that, however excellent they may be in other respects, they fail in the logical and systematic teaching of those principles of design which are essential, if a community of ideas and generally accepted standard of criticism, so necessary to a vital school of architecture, is to be maintained.

Such logical system of teaching and standard of criticism exists at the Ecole des Beaux-Arts, where the principles and theory of architecture have been preserved by unbroken tradition since the time of Louis XIV. It is believed that the establishment of the definite architectural principles with which the Beaux-Arts atelier system is intimately connected is the first necessary step in this country towards placing architecture on a sound theoretical basis.

On this basis may be built up a general community of ideas, and a generally accepted standard of criticism, to take the place of the present confusion of aims. It would also appear to be the foundation on which any general co-ordinated system of the teaching of design, and any national School of Architecture, must ultimately rest.

It may be mentioned that applications have already been received for admission to the first atelier, which will probably be opened early in February. Other students desiring information should apply to me at once. Any requests I may receive for admission will be laid before the Beaux-Arts Committee.

It should be explained that preference will be given to those whose previous work indicates that they are best qualified to profit by the form of instruction to be given.

It is hoped that it will be practicable to issue a prospectus giving full details in the course of a week or ten days.

R. GOULBURN LOVELL, Hon. Secretary,  
Beaux-Arts Committee.

St. Moritz, Eastbourne.

[While we are glad to publish details of any scheme of architectural education put forward by responsible persons (and on the committee of management of the Society of Architects' scheme appear several well-known names), we cannot accept without comment the statement in the above letter that all the present schools of architecture "fail in the logical and systematic teaching of those principles of design which are essential if a community of ideas and a generally accepted standard of criticism, so necessary to a vital school of architecture, is to be maintained." It seems



to us very clear that both the Liverpool School of Architecture and the Architectural Association School each in its separate way, and particularly the former, have proved by the published work of their students that the very thing they have established is "the community of ideas and the accepted standard of criticism" asked for. We are, indeed, continually surprised by the consistent standard of design and draughtsmanship reached by the Liverpool students: but, more than that, we see in the work of these students evidence of the growth of a genuine school of design, using the term "school" in its widest sense. We shall be very much interested in the results of this proposed atelier scheme, and shall welcome them in our columns if they reach the standard of the student work we have already published; but until some actual work is produced we think it a little early for the Society of Architects to state that their school is going to supplement the deficiencies of other established institutions.—Editors A. AND B.J.]

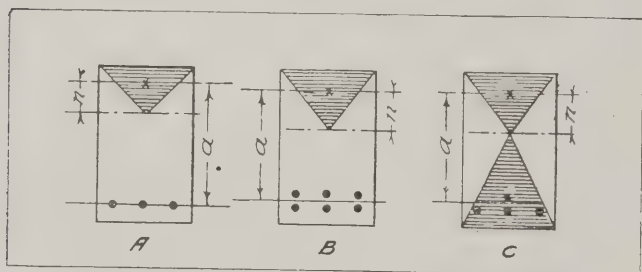
*Mr. Wells's Presidential Address.*

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—Mr. Rings's letter in your issue for January 1st commences with a proof that an increase of compressive strength in the concrete of a reinforced beam does not increase the lever arm, yet it finishes with a proof that such an increase of strength would be equivalent to an increase of the lever arm. With equal truth one might say that it would also be equivalent to increasing the breadth or the depth, or to decreasing the span of the beam, and to state that the lever arm increases with age is no more correct than to say that the beam grows broader or deeper or shorter.

Mr. Rings condemns as being "obviously erroneous" the conclusion of your correspondent "P." that the hardening of concrete tends if anything to reduce the lever arm, and consequently the tensile resistance of the beam.

As there is no reference in "P.'s" letter to the tensile resistance of the beam, the words in italics have evidently been introduced by Mr. Rings in consequence of a failure to appreciate that a section may be strengthened by an increase in the tensile resistance which at the same time reduces the lever arm. If a fresh element of tensile resistance (namely, the concrete) comes into play with its centre of action between the tensile reinforcement and the neutral axis, then the lever arm (which is the distance between the centres of gravity of the equivalent areas in compression and tension) is necessarily shortened.



This can be readily seen in the case of a Section A, which is strengthened by doubling the tensile reinforcement in two rows, as in B. The lever arm A is obviously shorter in the obviously stronger section. Section C shows the same effect (decreased lever arm with increased strength) caused by concrete instead of steel in tension. The contention of "P." would therefore appear to be quite correct.

Mr. Rings's suggestion that coke breeze concrete between rolled steel joists has been used with great success needs a serious qualification. Some kinds of coke breeze are known to be highly deleterious to steel, and it remains to be seen whether many of the successful structures will stand the test of time.

In any case it is futile to attempt to deduce any tensile strength for concrete from loading tests on such floors, because the "concealed arching" of flat concrete floors between rolled joists is a very different action from the bending of slabs with either free or fixed edges.

Mr. Rings's statement that a beam only resists greater loads at greater ages because of the increased tensile resistance of the concrete is only true of lightly reinforced beams, in which the stress on the steel is the criterion of safety. In the great majority of cases in actual design the strength of the concrete in compression is the critical factor; and as this increases with age, so the safe carrying capacity increases, quite irrespective of whether the tensile strength of the concrete can be safely trusted or not.

London, W.C.

PERCY J. WALDRAM.

## MODERN SMALL HOUSES.

AS the eleventh example in this series we illustrate, on page 44, a house that has been erected in the Alkrington Garden Suburb, Middleton, near Manchester, as a residence for the architect, Mr. Thomas A. Fitton. It is situated on a high site, facing Alkrington Green, and enjoys a fine outlook over the park lands surrounding Alkrington Hall—a Georgian mansion with historical associations. The materials used are local bricks, pointed and limewashed, the roofs being covered with rustic hand-made tiles of variegated colour.

## WORKING DRAWINGS BY WELL-KNOWN ARCHITECTS.

WE reproduce this week the working-drawing of the west staircase at the Albemarle Club, Dover Street, London, W., by Messrs. Smith and Brewer, F.F.R.I.B.A. This forms part of the alterations which were carried out a few years ago. New premises being desired, the club acquired No. 37, Dover Street (a house designed by Sir Robert Taylor in the latter half of the eighteenth century for the occupation of the Bishop of Ely), and the interior was altered to serve its new purposes. The shape of the site necessitated a long corridor to some large rooms which have been arranged on the Berkeley Street side of the house. Half-way along the length of this corridor is the main staircase, which leads to the first floor, from which level, at the west end of the corridor, the subsidiary staircase rises. It adjoins the drawing-room on the first floor and leads to the smoking-rooms on the floor above.

## R.I.B.A. PROBLEMS IN DESIGN.

WE illustrate on page 41 of this issue two approved designs for an art gallery—Subject V. (a), by Mr. B. Newbould and Mr. W. H. Thompson respectively.

As announced last week, the designs required for Subjects VII., VIII., and IX. are as follows:—

### SUBJECT VII.

(a) A monumental staircase and vestibule to a large museum; (b) a village inn with not more than eight bedrooms. (Drawings to be sent in by February 28.)

### SUBJECT VIII.

(a) A covered carriage entrance to a large hotel built in stone; (b) a gatehouse to a college. (Drawings to be sent in by April 30.)

### SUBJECT IX.

(a) A monument in a public place containing one or more fountains commemorating the bringing of water to a town; (b) a bank in a small county town on a corner site. (Drawings to be sent in by June 30.)







*Supplement to THE ARCHITECTS' AND BUILDERS' JOURNAL, Wednesday, January 8th, 1913.*







THE GRAND STAIRCASE, PALAIS DE JUSTICE, BRUSSELS. J. POELAERT, ARCHITECT.







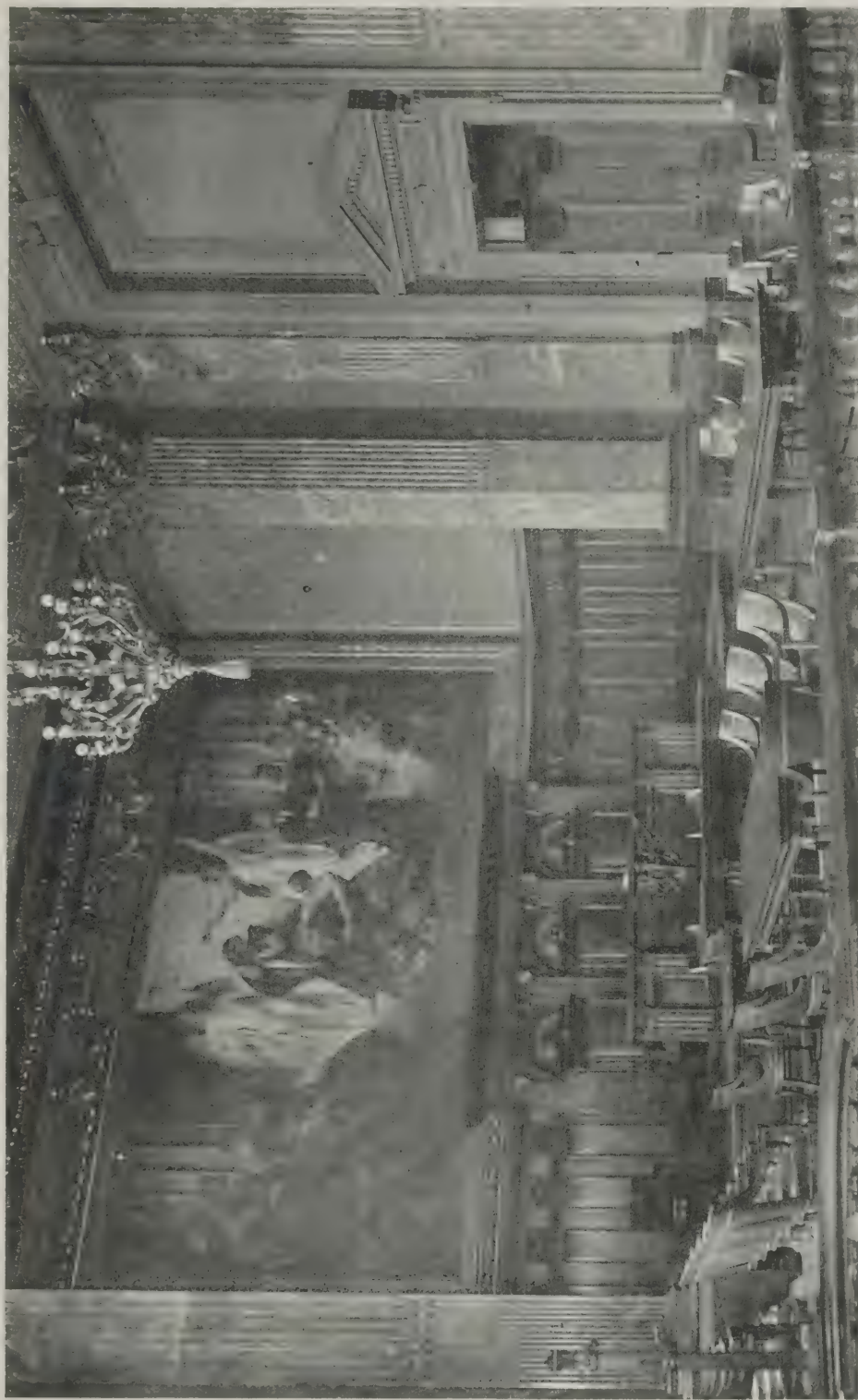


*By Courtesy of "The Architectural Record."*

THE NEW FEDERAL BUILDING, CLEVELAND, OHIO: VIEW IN MAIN CORRIDOR.  
ARNOLD W. BRUNNER, ARCHITECT.







*By Courtesy of "The Architectural Record."*

THE NEW FEDERAL BUILDING, CLEVELAND, OHIO: CIRCUIT COURT. ARNOLD W. BRUNNER, ARCHITECT.  
MURAL PAINTING BY EDWIN H. BLASHFIELD.

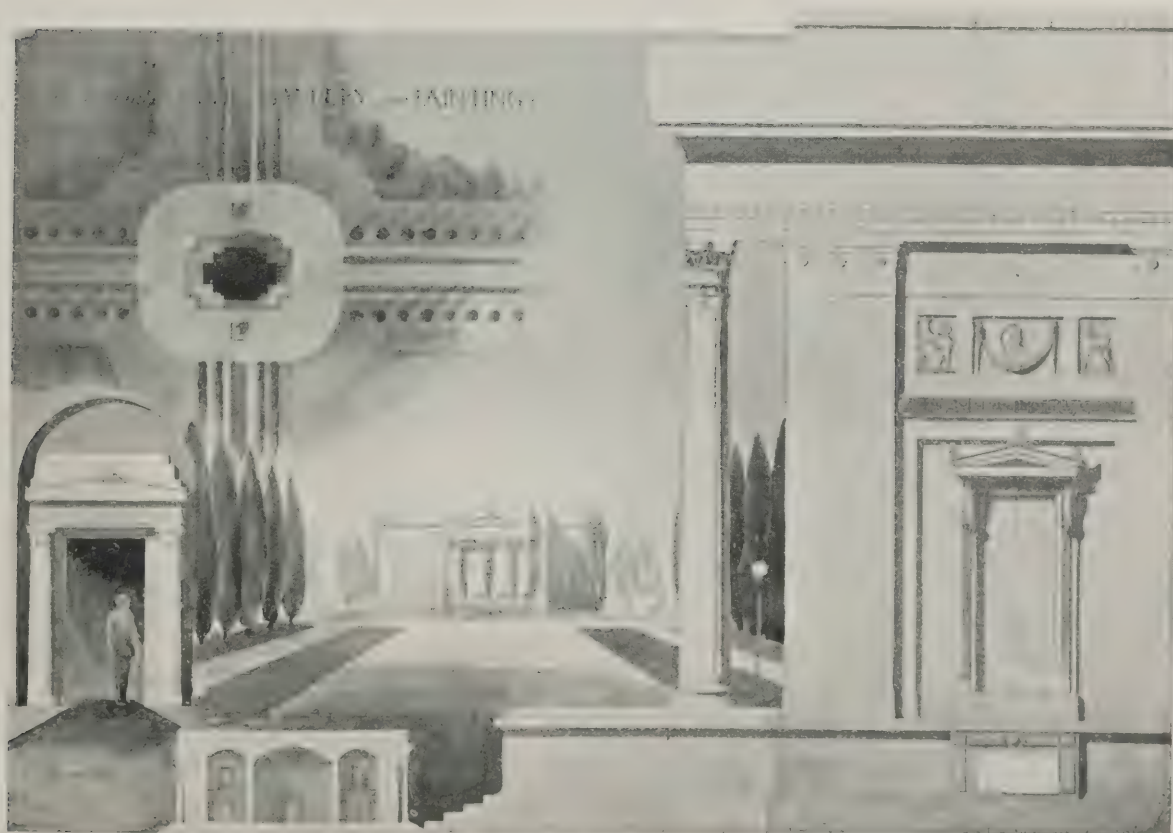




STUDENTS' PAGE.



By B. Newbould.

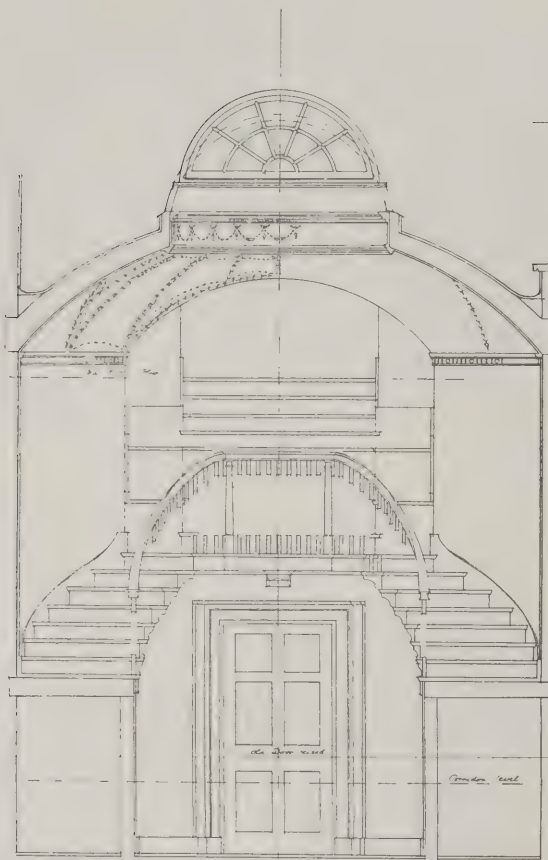


By W. H. Thompson.

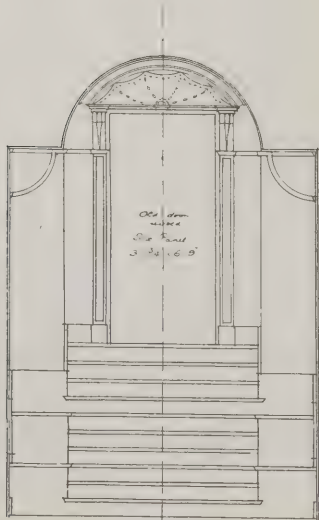
TESTIMONIES OF STUDY FOR R.I.B.A. FINAL EXAMINATION: APPROVED DESIGNS, SUBJECT V. (a).—  
A PICTURE GALLERY.

ALBEMARLE CLUB.

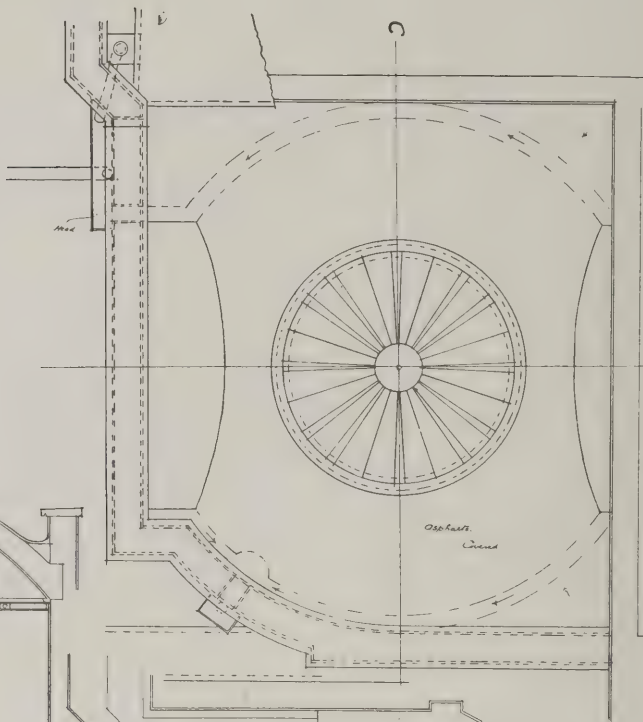
1/2" SCALE DETAILS



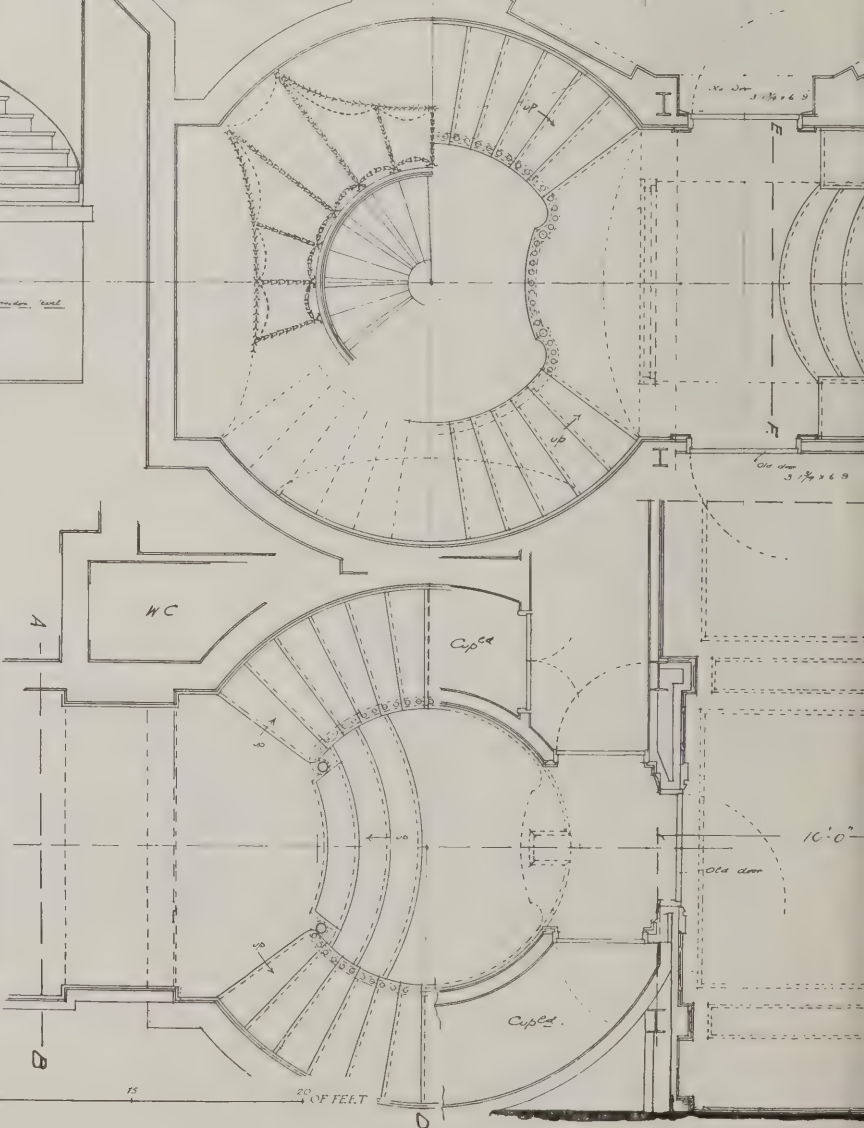
SECTION C D



SECTION E F

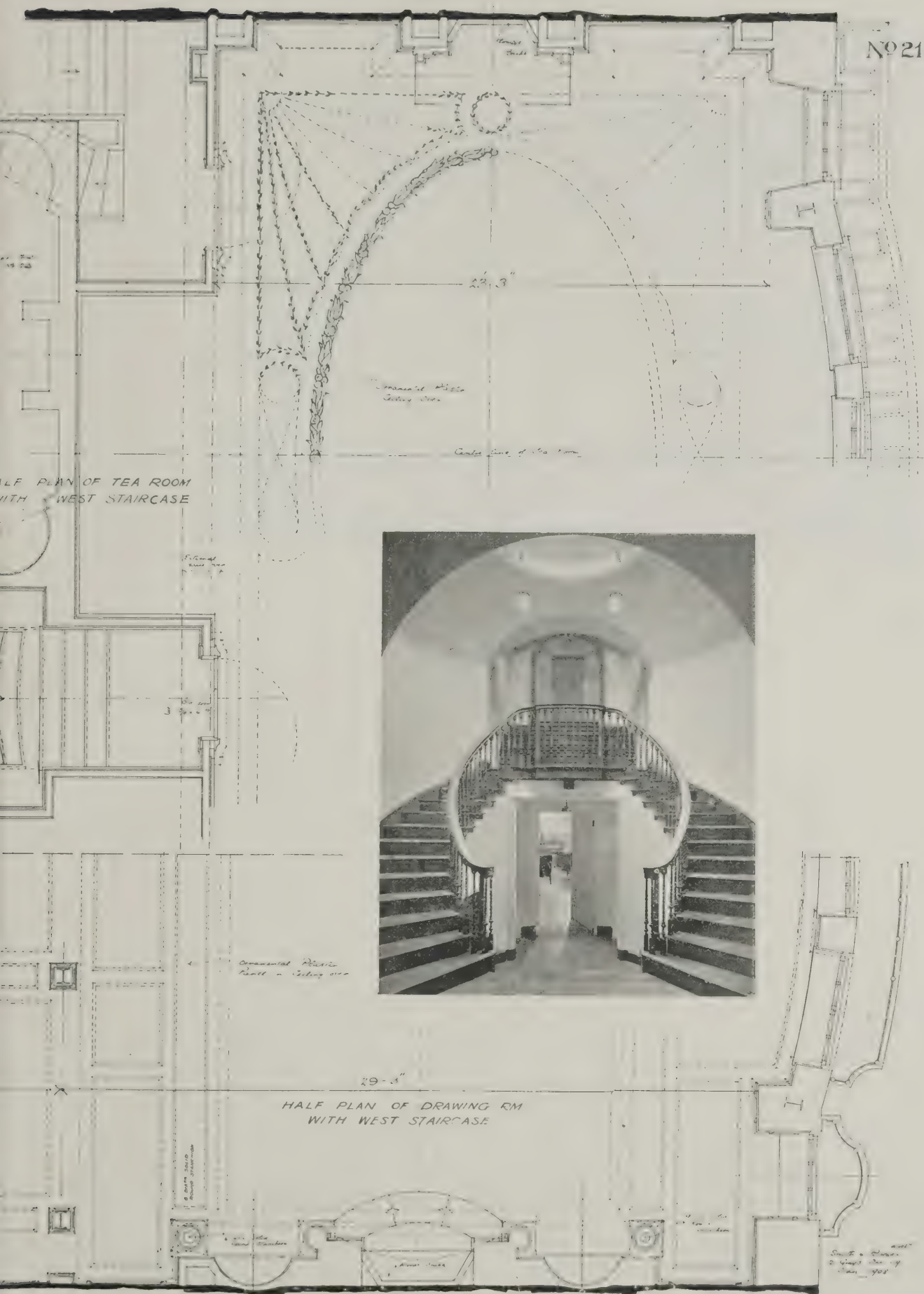


PLAN OF ROOF OF WEST STAIRCASE



SCALE 1/2" = 1'-0" 0 1 2 3 4 5 6 7 8 9 10 15 20 FEET





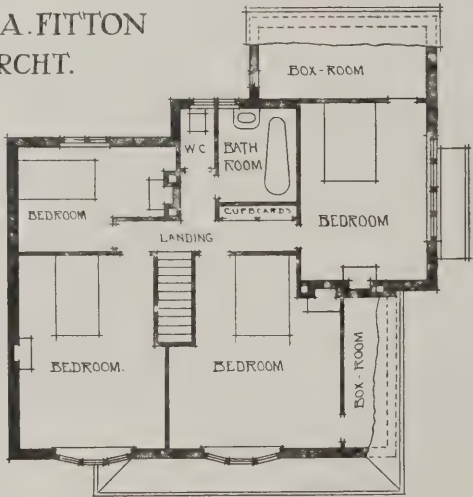


COTTAGE *at* ALKRINGTON GARDEN  
VILLAGE, MIDDLETON

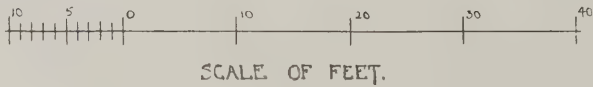
THOS. A. FITTON  
ARCHT.



GROUND FLOOR PLAN



CHAMBER PLAN



SCALE OF FEET.



## THE ARBITRATION CLAUSE IN CONTRACTS.\*

BY W. VALENTINE BALL, M.A., BARRISTER-AT-LAW.

THE author's object was to discuss the clause which is usually inserted in contracts for the erection of building and other works in order to secure the reference of disputes to arbitration.

One of the chief objects of arbitration appears to be to avoid actions at law. Whether there is wisdom in this general boycott of the law courts is a question upon which he did not wish to enter. He proposed to consider whether, and by what means, the parties to a contract can make sure that the disputes which may arise during or after the execution of the works shall be referred to an agreed arbitrator, whose decision shall be final. He would not, however, discuss the complicated question whether the municipal engineer acting in the discharge of his duty to his corporation is an arbitrator or not.

In recent years the practice has grown up of appointing an engineer or surveyor who is actually in the employment of a municipal or other local authority to act as sole arbitrator under a contract to which that authority is a party. There are probably hundreds of such contracts in existence at the present time. How far may the contractor be compelled to submit to them?

*Agreement to Refer to Arbitration.*

A man cannot enter into a contract on the terms that neither he nor the person with whom he contracts shall have recourse to the legal tribunals of the land. As to arbitration, however, the Courts have long since held that the decision of an arbitrator may be made a condition precedent to bringing an action. The jurisdiction of the Courts is not really ousted. If A agrees with B that, any dispute arising thereafter between them, it shall be decided by C, neither party can sue unless it be shown that C is dead or has refused to act. If A refuses to submit to C's decision, he can (in effect) be compelled to do so by the Court.

In actual practice the arbitration clause with which we have to deal to-day closely affects the engineer or surveyor who is employed by a local authority in connection with the execution of a contract. When disputes arise they are referred to that engineer or surveyor, and the contractor—not unnaturally from his point of view—sometimes tries to get away from the decision of the very man with whom he has been at issue. He brings matters to a head by ignoring the "agreement to refer." This he does by commencing an action. The local authority then takes out a summons pursuant to sec. 4 of the Arbitration Act, 1889, to stay the proceedings on the ground that there is no sufficient reason why the matter should not be referred in accordance with the submission.

*Allegation of Bias.*

The question is, What will the Courts hold to be sufficient reason? It is obvious that bias clearly proved would be sufficient to justify the Court in refusing to allow a particular man to sit as arbitrator; but the question of *bias* is not easy when considered in relation to a man who was a servant of the employer when the contractor agreed to his name being inserted in the contract as arbitrator.

*Ex hypothesi*, such a man is obviously bound to his employer to some extent. What, then, is sufficient *bias* in the legal sense?

The author then dealt with a number of recent and very important cases on this subject, with a view to showing that the time has arrived for local authorities to reconsider the whole position. Most of these cases are already familiar to readers of this journal.

In order to succeed because of alleged bias a probability, not a mere possibility, of bias must be shown (*Eckersley v. Mersey Docks*, 1894, 2 Q.B., 667). The mere fact that the arbitrator is the servant of one of the parties is not sufficient to disqualify him; for this is a fact which must have been known when the contract was signed; and this point was emphasised in *Ives v. Willans*, 1894, 2 Ch., 478.

A distinction is to be drawn between circumstances known to exist at the time of the contract and those which afterwards supervene. For instance, in a Scotch case, a firm of contractors who had undertaken to build a public building agreed with the town council that a particular gentleman should act as arbitrator in case of disputes. The gentleman subsequently became elected "dean of guild," and thereby, *ex-officio*, a town councillor. It was held that this disqualified him from acting as arbitrator (*Edinburgh Magistrates v. Lownie*, 1903, 5 F., 711).

In the case of *Belcher v. Roedean School*, 1901, 85 L.T., 469, it was held that an application to revoke a submission to arbitration was one to be granted with great caution, and that the submission ought not to be revoked.

*Position of Arbitrator.*

Where the matter in dispute is something in which the arbitrator is only indirectly interested, a reference to him would not be prevented. (See *Skinner v. Uzielli*, 1908, 24 T.L.R., 266.)

It has been held that a mere expression of opinion in favour of one party is not sufficient reason to disqualify an arbitrator unless it appears that he has so made up his mind as not to be open to argument (*Jackson v. Barry Railway Company*, 1893, 1 Ch., 238).

In a later case (*Freeman v. Chester Rural District Council*, 1911, 75 J.P., 132), the Court (affirming the decision of Mr. Justice Lush), in the exercise of the jurisdiction conferred upon it by the Arbitration Act, 1889, refused to order the action to be stayed.

The cases already cited have this common feature: the conduct of the arbitrator himself did not form the subject-matter of any of the disputes. In certain recent cases, however, the Courts have laid down a very clear principle applicable in such circumstances. It seems that in considering the question whether a person who is the servant of one of the parties can act as arbitrator in a dispute, the Court will consider the nature of the question which he has to decide. (See *Blackwell and Co. v. Mayor*, etc., of Derby, 1909, 75 J.P., 129.)

The Courts are very jealous of any interference with contract. The fact that this jealousy exists makes it impossible for a contractor to hope to escape the other obligations imposed upon him by

the contract. If he has underestimated the amount of excavation necessary, or the amount of materials to be provided for completion, the fault and the loss will be his. Again, if he has underestimated the time which the works will take, or if unforeseen circumstances for which the employers are not responsible have arisen to cause delay, the loss is the loss of the contractor. It is difficult to see how any of the losses arising from these causes can be avoided if the contractor has signed a contract which binds him hand and foot.

The most recent case on the subject which was heard by the Court of Appeal in March last—namely, *Aird v. Lord Mayor of Bristol*, Court of Appeal, 1912, shows that the Court will not extend, although it still adheres to, the principle above laid down.

The last case to which the author referred was the decision of the House of Lords in *Roberts v. Hickman* (reported in the second supplement to "Hudson's Building Contracts"). It was there held that the grant of a certificate by an architect will not be a condition precedent to the builder's right to sue, if by allowing himself to be influenced by his employer's views the architect has disqualified himself from acting judicially, although guilty of no fraud or improper conduct.

*Summary of Cases.*

Summarising the cases to which he had alluded, the author remarked that the contractor will not be compelled to submit to the decision of the employer's engineer as arbitrator (1) if the matter in issue is an unseemly personal dispute raising a vindictive feeling between the engineer and the contractor, and the engineer has so strongly expressed his view that it amounts to a prejudgment. (2) If the nature of the dispute is such that the cross-examination of the engineer is essential; (3) if the matter in issue is something outside the original agreement—e.g., a dispute as to whether the engineer and contractor had agreed to vary the original agreement; (4) if the conduct of the engineer himself is practically the only point in dispute.

*Suggested Reforms.*

Although there are probably hundreds of contracts now in force in various parts of the country in which the arbitrator is the engineer of the employer, circumstances may arise at any time which will prevent his acting when the time for his services arrives. Is it not therefore time to consider what alternative to adopt? The author proceeded to consider a few of them.

(a) The Deletion of the Clause.—Deletion of the arbitration clause would involve recourse to legal proceedings for the settlement of all disputes. Doubtless it might open a vista of litigation, and would therefore be rejected on that ground; but there is one fact in this connection which it is well to bear in mind—namely, that a dispute arising under a building or engineering contract would not come before the Court and a jury, but before a special referee (*i.e.*, an engineer appointed by the Court) or before an official referee. In the result the proceedings would be very similar to those which would take place before the arbitrator named in the contract. It is a trial of this kind which takes place if

\* Extracts from a paper read at a Joint Southern and South-Eastern District Meeting of the Institution of Civil Engineers.



litigation ensues owing to the failure of an arbitration clause. Save that a reference to an official referee is reference to a lawyer, it very much resembles a reference to arbitration.

(b) Reference to an Independent Arbitrator.—Reference to an independent arbitrator appears to present almost if not quite as many objections as a reference to the Court. An independent person, even if he is an eminent engineer, has to be taught all about the nature of the work at the expense of the parties to the dispute. Witnesses to fact must be called in enormous numbers, while the expert witness, whose fees are considerable, must also be called at the expense of both parties. In the result the proceedings may drag on for days or even weeks. There are various ways of selecting an independent arbitrator. He may be named in the contract. If named, his independence may to some extent be affected by his being brought into business contact with one or other of the parties; but they would no doubt select a man who was not likely to have any such dealings with them. His appointment or selection may also be left to the president of the Institution of Civil Engineers for the time being or to some other eminent personage. To leave it to a person who may happen to be president of an institution for the time being does not appear to be a very wise proceeding, inasmuch as the capacity of such person to select and appoint an arbitrator is a matter of pure speculation. It is much wiser, if it is desired to have an independent arbitrator, to leave him to be selected by agreement when the dispute arises, or, failing agreement, to be nominated by some eminent engineer of known capacity.

(c) An Amendment of the Arbitration Clause.—All the above proposals are open to the objection that they entail the expense inseparable from the appointment of an independent person. Numerous questions might arise in relation, say, to a sewerage contract, which could be decided by the engineer on the job without any objection being raised by the contractor. Suppose, for instance, the question was whether the cement supplied was capable of withstanding the prescribed tests. To have to refer such a matter to arbitration would be ridiculous. Again, the question whether a delay of, say, two days was justifiable could be decided in five minutes by the engineer who had been on the job, but could not be decided until after a long hearing by an independent arbitrator. Short of arbitration by the engineer "on the job," I have endeavoured to make it plain that the next best thing is for the parties to retain their hold over the selection of the arbitrator by means of one or other of the above methods. At present the alternative to the arbitrator mentioned in the contract is settlement of the matter in dispute by litigation. It would seem that by slightly modifying the usual form of arbitration clause the desired result can be attained.

I venture to make the following suggestion: Frame the arbitration clause so as to leave the decision of every question arising under the contract to the engineer, but subject to a proviso that, should it appear to the Court on an application to stay any action or proceeding brought in relation to the contract that the engineer is disqualified from acting as arbitrator, the matters in dispute will be referred to an engineer, to be agreed between the parties, or, failing agreement, to be nominated by the president of the

Institution of Civil Engineers. Another alternative is suggested by Mr. E. J. Rimmer, in his "Arbitration Clause in Engineering Contracts" (Constable and Co.). It is that, while preserving the finality of the decision of the engineer upon certain special points, a proviso should be added to the arbitration clause, stating that if any action is brought the defendant may either (a) have the action stayed and remitted to the engineer, or (b) have the matter referred to an independent arbitrator appointed in one or other of the manners above suggested. The same gentleman suggests that the decision in *Aird v. Bristol Corporation* (supra) may be got over by a new clause preventing the engineer entering into any agreement with the contractors unless certain conditions are complied with. I do not attempt to draft a form of clause; the actual wording would have to vary according to the other conditions of the contract and the circumstances of the case.

It might be argued that such an agreement would operate as an attempt to oust the jurisdiction of the Court; but it really would not have this effect. It simply means that the various steps above-mentioned must be taken before the law courts can be asked to decide a dispute or refer a matter to an official or other referee.

#### Conclusion.

It will be noticed that I have been compelled to base some broad general propositions on but a few cases. The fact that they are so few would seem to show that the demand for reform is not one of great exigency. But my researches in this matter have led me to think that what the local authority, which is responsible to the ratepayer, desires in relation to a contract is certainty. Certainty, so far as humanly possible in the matter of price and time; certainty that work shall be done under trustworthy supervision; and last, but not least, reasonable certainty that disputes shall be settled economically and expeditiously by a man in whom they have confidence. The suggestions I have put forward may, if adopted, avoid a good many of the pitfalls laid bare by the cases which I have cited.

#### SKYSCRAPERS FOR BERLIN.

An influential agitation is afoot for the long-projected introduction of the American skyscraper into Berlin. The German calls them "cloud-scratchers," but till now would hear nothing of them. Now comes a distinguished authority, Dr. Walther Rathenau—engineer, author, and friend of the Kaiser—who deposes that "since the Middle Ages there has been no architectural creation to compare in beauty with the sky-line of New York," and who earnestly advocates the revision of the Berlin building laws, which now limit buildings to a height of five storeys and 72½ ft. Dr. Rathenau, who will some day succeed his multi-millionaire father as the head of the German Electrical Trust, is known to be an intimate adviser of the Kaiser on things economic, and it may be that the Emperor's support will be lent to laws necessary to permit construction of "cloud-scratchers." They are becoming increasingly necessary in Berlin, owing to the inordinate rise in value of the land space in the city.

The Kaiser, however, has a will of his own, and his acquiescence in the views of his most intimate advisers is never a foregone conclusion. On the other hand, his nod of assent would transform Berlin.

## IN PARLIAMENT.

(By Our Press Gallery Representative.)

#### King Edward Memorial.

Captain Murray having suggested that the Duke of York's Column should be demolished and the King Edward Memorial erected near the steps overlooking St. James's Park, Mr. Wedgwood Benn stated that the First Commissioner of Works did not see his way to consider the suggestion. He added that the upkeep and repair of the Duke of York's Column fell on the Office of Works vote.

Mr. King suggested that the column should be thrown open to the public so that a view might be obtained from the top. He said the City of London made a profit of £300 a year on the Monument in the City.

Mr. Wedgwood Benn promised to convey the suggestion to the First Commissioner.

Captain Murray asked whether the memorial to King Edward was to take the form of an equestrian statue.

Mr. Wedgwood Benn replied in the affirmative.

#### The New Government Buildings in Edinburgh.

Mr. Hogge repeated a question which he had previously addressed to Mr. Wedgwood Benn asking the reasons which had induced the First Commissioner of Works to decide that the designs for the new Government buildings on the site of the Calton Gaol should be carried out in the Office of Works, and whether, in view of the national character of those buildings, the decision would be reconsidered.

Mr. Wedgwood Benn replied that the Committee having examined the designs and models prepared in the Office of Works, Edinburgh, considered an open competition unnecessary.

Mr. Hogge reminded the honourable member that he had offered to give the reasons.

Mr. Wedgwood Benn said the reasons which actuated the Committee were that they accepted the designs which they considered the best suitable for the site.

Mr. Goldsmith asked whether, for the last six years, designs of all public buildings had been carried out in the Office of Works, and why designs for important public buildings were no longer put out to open competition.

Mr. Wedgwood Benn said that each case was considered on its merits, and that was done in this case.

#### The New Delhi.

Mr. King asked whether the attention of the Under-Secretary of State for India had been called to proposals for securing the sanitation and amenities of the new Delhi by damming the River Jumna, made by Sir Bradford Leslie, and whether they would be brought before the Delhi Town-planning Committee for their consideration and assistance.

Mr. Acland, who replied, said the question no doubt referred to a paper on Delhi read by Sir Bradford Leslie at a meeting of the Royal Society of Arts. A copy had been sent to the Government of India.

Sir J. D. Rees asked if the Secretary of State would support those proposals.

Mr. Acland promised to convey that request to the Secretary of State. In regard to the report of the Committee appointed to advise on the site and planning of the new city, Mr. Acland promised to make a copy available in the Members' Library. He added that until the Committee made their



final recommendations the report did not bind in any way either the Government of India or the Committee.

Mr. King asked whether it was intended to set aside a site for a cathedral, and whether the building would be entirely raised by voluntary donations.

Mr. Acland said the sites of buildings at Delhi had not yet been allocated. It might be assumed that a site would be set apart for a church. The questions whether it would be a cathedral church and the funds out of which it would be built had not, so far as the Secretary of State was aware, yet arisen.

#### *Stafford House.*

Mr. King asked the Prime Minister whether the Government had received the offer of Stafford House; if so, whether the offer had been accepted; and, if accepted, what was the destined use of the property.

Mr. Asquith, in reply, said: His Majesty's Government have received from Sir William Lever the offer of the remainder of the lease of Stafford House as a gift to the nation subject to certain conditions. His Majesty's Government much appreciate the generosity of the offer and are now considering the matter. I can make no further statement at present.

#### *Bedford College Buildings.*

Mr. Runciman informed Mr. Cassel that the whole of the buildings in course of erection in Regent's Park for Bedford College were indicated on the plans originally submitted to the Crown estates surveyor for approval, though the detailed drawings did not include details of the kitchen and dining hall and common room block. The detailed drawings of the latter block were approved August 1, 1912. A small turret on the administration block not originally shown was sanctioned on February 12, 1912.

Mr. Cassel asked why this college was allowed facilities for building in the park which were not allowed to anyone else.

Mr. Runciman said the question had previously been discussed in the House and many answers were given by the Treasury when they were responsible.

Mr. Cassel suggested that Mr. Runciman's first reply showed that since then additional buildings had been erected.

Mr. Runciman disagreed and said it only showed that details which were not on the original plan had been passed subsequently. In further reply to Sir Henry Craik, he said the later additions did not interfere with the amenities of the park, which were carefully guarded by the Treasury and the Office of Works.

## OBITUARY.

#### *Mr. John G. O'Sullivan.*

The death occurred on Christmas Day, after a week's illness, of Mr. John G. O'Sullivan, A.M.Inst.C.E., borough surveyor and city engineer of Dublin. He became deputy borough surveyor in 1900, and succeeded his chief, Sir Spencer Harty, rather less than three years ago. He was closely associated with the clearance of the extensive slum area in Cook Street, and the subsequent erection of artisans' dwellings there, had planned the Roundwood reservoir, and had nearly completed the installation of an electricity plant for the working of the main-drainage pumping station.

## COMPARATIVE COSTS OF DOMESTIC HEATING.

Mr. C. R. Darling, in his recent Cantor Lectures at the Royal Society of Arts, gives an estimate of the costs of various means of domestic heating. He takes coal at 26s. per ton, anthracite at 36s. per ton, gas at 2s. 6d. per 1,000 cu. ft., and electricity at one penny per unit; hence, he gives the relative costs as—open coal fire 1.0, closed anthracite stove 0.39, open gas fire 1.54, electric radiator 6.5 (another report of these ratios is 1.0, 0.5, 1.5, 6.0). No mention is made about the efficiency of the heating, but as the estimate appears to be theoretical, we may take it that the heating is presumed to be sufficient.

Commenting on these figures, Mr. J. D. Hamilton Dickson states that in the winter of 1910-11 he made a continued series of observations on the cost and efficiency of the heating in his own house, employing an open coal fire, closed anthracite stove, open gas fire, and electric radiator. In these results the price of coal was 23s. 6d. per ton, anthracite 39s. per ton, gas 2s. 8d. per 1,000 cu. ft., and electricity one penny per unit. The actual costs for a week of seven days of twelve hours each, as shown by the coal bill, and by the readings on the gas and electricity meters, were—open coal fire 49d., closed anthracite stove 14d., open gas fire 141d., electric radiator 168d.; giving the ratios (corresponding to Mr. Darling's) of 1.0, 0.29, 2.88, 3.43. The open grate was a slow combustion stove, and the temperature observations were made on three thermometers, one outside the house, one in the room about 8 ft. from the fireplace (these two being max.-min.), and the third in the neighbourhood of the fireplace. With the anthracite stove the room was kept continuously at or over 60 deg. F., generally with the window open, even in the coldest weather. The present mild winter has brought forward prominently the economy of anthracite. The stove in question has been burning continuously night and day from September 28 till now. Between that date and December 28 it consumed 10 cwt. of anthracite at 40s. per ton; thus the cost per week of seven days of twenty-four hours each has been only 18.46d., or about two-thirds of the cost in the previous series of observations (27.30d.). The temperature of the room has been maintained at or over 60 deg. F., and on one occasion the outside temperature fell to 26 deg. F. The stove is rated to heat 2,500 cu. ft., and the room measures about 2,600 cu. ft.

The data given for anthracite show a daily (24 hours) consumption of 12.31 lb. Two slow-combustion coal fires consumed together five tons of coal (at 25s. 6d. per ton) from August 8 to December 7 last year, giving for one fire 46.28 lb. of coal daily (12 hours), for a room of 2,300 cu. ft., maintained at or over 60 deg. F. With regard to gas, Mr. Dickson's experience differs entirely from Mr. Dale's presumption. As a fact the consumption of gas was 52½ cu. ft. per hour, although it had been stated by an expert that 25 cu. ft. per hour would suffice to keep the room comfortable. All these costs are the actual amounts as shown in the coal, gas, and anthracite bills for the periods in question.

While the anthracite stove requires no daily fire-lighters, causes neither dust nor smell, necessitates no chimney-sweeping, and does not vitiate the air of the room, it is interesting to note that it adopts and develops the principle to be seen in daily use in the fireplaces of the Royal Institu-

tion, Albemarle Street, founded by Count Rumford himself, one of whose great ideas was to render domestic heating more effective. The writer expressly disclaims any interest whatever in any stove or grate beyond the desire to enjoy comfort with economy.

## USEFUL YEAR BOOKS.

A most useful annual for the architect and builder is "The Master Builders' Handbook and Diary" for 1913, which, besides being the official year-book of the London Master Builders' Association, is also a compendium of practical information for the builder, architect, surveyor, and builders' merchant. It contains an up-to-date and official list of the names and addresses of all members of the Association, as well as of members of the affiliated London Association of Master Decorators. The officers of the National Federation of Building Trades Employers are also given, and in the list of kindred institutions the president, secretary, official address, telephone number, and telegraphic address are in each case usefully recorded. New and improved photographic reproductions include a view of the Association's council chamber, and two excellent portraits—one of Mr. James S. Holliday, president of the London Master Builders' Association, and the other of Mr. H. A. Bartlett, president of the Institute of Builders. Not only are the transactions of the Association during the past year summarised, but there are also a "rapid review" of its rise and progress, brought up to date, a chronicle of its conciliation proceedings, the text of the working agreements with various trade unions (including the new rules agreed to with the carpenters and joiners and stonemasons during the past year, when a threatened strike was happily averted), and other interesting and valuable evidences of the influence and utility of the Association. Full lists of the London Labour Exchanges, and of the District Surveyors, with their offices, telephone numbers, and hours of attendance, will be of constant service throughout the year, and the same observation applies with equal force to the agreed form of contract, the text of the London County Council General Powers Act, the Water Board data, the interest tables, tables of strengths of joists and columns, memoranda for all trades, postal information, and, of course, to the diary, which is now more conveniently placed at the end of the book. A most valuable feature of this decidedly valuable annual is the record of legal decisions. These include not only the leading cases that, like *Warren v. Brown*, *Colls v. Home* and *Colonial Stores*, *Smithies v. N.A.O.P.*, *Wallace v. Douglass*, etc., stand as precedents, but also a digest of the more important decisions in 1912, such as *Ramsden and Carr v. J. Chessum and Sons*, *Padbury v. Holliday and Greenwood, Ltd.*, *John Aird and Co. v. Corporation of Bristol*, and many others. A very full index gives an instant clue to every item in the book.—Messrs. Robt. Ingham Clark and Co., Ltd., varnish manufacturers, Caxton House, Westminster, present, with their compliments, the "British Almanac and Companion," which, from the extent and variety of the information so closely packed into its 428 pages, is certainly one of the most useful of annual reference books. A peculiar feature is a collection of seating plans of the principal London theatres, concert-halls, and music-halls.

## TIMBER—ITS USES AND CHARACTERISTICS.

BY F. H. LEATHERDALE.

The following table will be found to include practically all the different timbers in general use. These are described in alphabetical order, and the brief annotations, showing the most important characteristics, should be of general use, besides being of special service to those who are preparing for professional examinations.

KIND.	COLOUR.	DESCRIPTION.	WHERE OBTAINED.	USES.
Alder.	Light red.	Exceedingly durable if wholly immersed in water, but soon decays if subject to alternate wet and dry. It is in its element where there is plenty of water.	Europe and America.	Piles, planking, clogs.
Ash.	Greyish white.	In positions subject to wet and dry it weathers well. Coarse grain, tough, durable, and elastic. Its great elasticity debars its use for large structural work, but is useful in situations that are subject to sudden stresses.	Great Britain, Europe and America.	Wheels, bent shafts, coach building, furniture, and agricultural implements.
Beech.	Varies from white, red and brown.	Annual rings and medullary rays strongly marked. It is hard and compact. Fairly durable.	Europe, Australia, New Zealand, and America.	Piles, cabinet making, domestic articles.
Birch.	White.	Not very durable. Grain hard and close. It has stringy fibre and is therefore tough: this is the reason why putlogs are of this material.	Europe, America, and Canada.	Putlogs, furniture.
Chestnut.	Light brown.	This is the Spanish chestnut and not the common horse chestnut, which is soft, white in colour, and of little use.	Southern Europe and America.	Piles, posts, and rails.
Cedar.	Greyish brown.	Very durable but liable to splint in nailing. Soft and close-grained. Takes a fine polish. Peculiar odour objectionable to insect life.	Europe, but is more prolific in tropical climes.	Cabinet making, cigar boxes.
Cypress (or Citron Wood).	Greenish white.	Strong and durable.	Asia, America, and Australia.	Piles, posts, furniture.
Ebony.	Black.	Planes with a glossy surface. Exceedingly dense, hard, and brittle. Although the colour is generally black, there are occasional light streaks. It has a specific gravity of more than 1, and hence will not float in water.	India and Ceylon.	High-class joinery and inlaid work.
Elm.	Reddish brown.	Exceedingly coarse grain, more durable when kept moist. The fibre is twisted and very tough.	America, Europe, and England.	Piles, coffins, butchers' blocks, agricultural implements.
Fir (Douglas, Silver, and Balsam).	Brownish yellow.	Annual rings strongly marked. The trees are of enormous growth.	America.	Marine and civil engineering.
Greenheart.	Greenish hue.	Very heavy and oily. The strongest and most durable of woods known, having a very bitter secretion, resists the attack of sea worms and insects. It comes next to teak for resisting the attack of the white ant. The section looks porous, resembling cane. It has a crushing resistance of 5 tons/in <sup>2</sup> . This is remarkable, as the grain appears porous. Its extensive use is debarred by its expense.	British Guiana.	Piling, engineering work generally, vessels, warehouse floors, structures under water.
Hornbeam.	Yellowish white.	Extremely hard and tough; very strong. Presents a beautiful smooth surface because of its compact grain.	Great Britain.	Machinery cogs.
Hickory (or Lance Wood).	Yellowish green.	Tough and elastic.	America.	Carriage building and dairy utensils.
Holly.	New growth white, but darkens with age.	Hard, close grain and tough.	Southern Europe.	Inlaid work and mathematical instruments.
Jarra.	Light brown.	Species of gum tree. Also called Australian mahogany, because it is similar to Spanish mahogany, but without the characteristic white specks of the latter.	South-West Australia.	Piles, sleepers, bridges, wood block paving.
Kauri Pine.	When planed is colour of old gold and presents a silky lustre.	Tough and elastic and of large growth.	New Zealand.	Shipbuilding and joinery work.
Larch.	Reddish brown.	Annual rings strongly marked. It is light and strong, but shrinks considerably. Used by the Romans for building bridges.	Mountain Ranges of Central Europe and Russia.	Piles, flooring, shipbuilding, sleepers.



KIND.	COLOUR.	DESCRIPTION.	WHERE OBTAINED.	USES.
Lignum Vitæ.	Green.	Specific gravity of more than 1 and therefore will not float in water. It is of an oily nature.	Islands of West Indies (Caribbean Sea).	Marine engineering.
Lime.	White.	Medullary rays strongly marked and annual rings distinct.	Europe and England.	Cabinet making.
Mahogany.	Rich red.	Very durable. Characteristic white specks. Takes about 200 years to arrive at maturity.	Island of Cuba and Honduras.	High-class joinery.
Oak.	Light brown.	Medullary rays strongly marked; annual rings distinct. Very tough and durable. Contains gallic acid and therefore <i>not</i> used in conjunction with iron, which it rapidly corrodes.	Europe, including Great Britain.	High-class joinery, shipbuilding.
Pitch Pine.	Yellowish white.	Resinous; annual rings strongly marked. Not so good for groynes as creosoted fir, because the resin is like a thin gum, washes away, and leaves the wood to decay.	Virginia.	Joinery and engineering work generally.
Red Deal (Pine).	Reddish yellow.	Same botanical class as yellow deal, but annual rings more strongly marked.	Northern countries of Europe.	Engineering generally and carpentry.
Rosewood.	Yellowish white.	So called because when freshly cut has a faint smell of roses. Specific gravity of more than 1. Hard and close grain. Presents a good polishing surface.	Southern India and Brazil.	Furniture and turnery.
Spruce Fir (White Deal).	Yellowish white.	Not very durable, and is liable to warp. Sap wood not distinguishable from heartwood. Spruce fir is recognised by its numerous loose, hard, and dark knots.	Norway, Sweden, and America.	Flooring, inferior carpentry, scaffold poles, packing cases.
Sycamore.	White.	Hard and tough, close grain, good polishing surface.	Europe and England.	Domestic articles and turnery.
Teak.	Brown.	The Indian kind is sometimes known as Indian oak. Is porous but durable. Contains a resinous aromatic oil which preserves iron fastenings, etc.	India, South America.	Shipbuilding and joinery.
Walnut.	English variety of a rich dark brown. American variety is darker with a violet hue.	Close-grained and strong.	Italy, England, America (stated in order of quality).	Furniture, high-class joinery, musical instruments.
Yellow Pine.	Pale straw with black streaks.	Takes glue well, but splits in nailing. Large size, does not warp or twist in drying, particularly free from knots. Most common and yet most valuable building material in Northern states. It is also known as Weymouth pine, after Lord Weymouth, who first introduced it into this country in 1708.	America and Newfoundland.	Internal joinery.
Yellow Deal (Northern Pine, Baltic Pine).	Pale straw.	More durable than white deal, the knots being of a rich reddish brown.	Northern countries of Europe.	All kinds of joinery.
Yew.	Rich reddish brown.	Not much used, annual rings strongly marked, tough and elastic. Exceedingly durable in moist situations.	Europe and America.	Furniture and domestic articles.

## BOOK NOTICES.

### *The Evolution of Architecture.*

It is among the common *obiter dicta* of topographers that the buildings of Oxford illustrate amply, if not completely, the most important chapters of architectural history. Mr. E. A. Greening Lamborn has taken these writers at their word. He believes that Oxford, "a unique city in so many respects, is unique in this—that all the great architectural types are represented in her buildings. It is true," he acknowledges, "that our examples of classic architecture are but poor imitations of the stately porticoes of Greece and Rome," but he nevertheless claims that the Oxford buildings "will still serve to illustrate the mechanical principles and the ornamental details of the ancient building systems; of every stage of mediæval architecture Oxford possesses examples as representative of the best work as are to be found anywhere in England; the buildings of the great Renaissance architects are not better represented in London itself than in the streets of our own city; and finally, it was Oxford that saw both the last efforts of expiring Gothic and the first attempts at the

revival of the mediæval style." Even granting the truth of all this, it may be objected that there are ampler ways of illustrating architectural history. "The world is all before us where to choose." The scheme has, nevertheless, much to recommend it. Better examples than Oxford can afford may be out of our reach; and, after all, the photograph is but a poor substitute for the actual object, and it is infinitely more impressive to behold in its three dimensions an inferior building at Oxford than it is to study a flat photograph of a masterpiece of Greece or Italy. The author's object is the perfectly legitimate one of tracing and illustrating a continuous line of evolution in architecture, and the buildings at Oxford answer this purpose sufficiently well; although the attempt to apply to the study of architecture the methods of modern biology being comparatively novel—Mr. Garbett's "Principles of Design in Architecture" ("probably the most philosophically written treatise on the subject") first suggested to the author the idea of treating it in this way—it is not to be expected that the author's deductions will be found irrefragable in every particular. The book is divided into two parts, the

first dealing with the history and the second with the grammar of architecture. In the former is shown the sequence of styles and methods; in the latter it is the author's purpose "to make an analysis of English building construction, studying the details of its anatomy in their relations to each other and to their common purpose, tracing the origin of its parts and their modifications throughout the historical period." He holds that the changes in detail which mark the different periods are not due to changing æsthetic taste, but are almost always traceable to attempts to improve the practical utility of the building: a supposition that should have been qualified by some recognition of the obvious impossibility of keeping function and taste wholly separate. They are to a large extent interdependent. The author has entered into his subject with much buoyancy of spirit, and, upon at least one occasion, "drops into poetry," which, good as it is in itself, has but little relevancy to the subject; and there are other divagations which, if they betoken a little over-exuberance, serve, at all events, to heighten the general impression that the writer is out for enjoyment—his own and the reader's—and is determined to invest



his subject with all the personal interest of which it is capable. He has produced, in fact, a very delightful little book.

"The Story of Architecture in Oxford Stone." By E. A. Greening Lamborn. 288 pages, 7 ins. by 4½ ins., price 3s. 6d. net. Oxford: At the Clarendon Press.

#### "Academy Architecture."

Mr. Alex. Koch's selection of architectural drawings exhibited in the Royal Academy is no doubt fairly representative, and it is therefore not his fault if the work shown does not beget very much enthusiasm in the beholder. None of it is positively bad; yet there is none of it that we should care to describe as superlatively good, although some of it is certainly quite excellent after its kind, even when the building happens to be ecclesiastical. It is disquieting, however, to find, throughout the work, little or nothing that charms the eye and rivets the attention—little or nothing that is indubitably above that general dead level of respectable mediocrity which, more than any other portent, forewarns of approaching sterility and of the need of a vigorous forward movement. If the essays in the grand manner are, on the whole, disappointing, the domestic work, on the other hand—what there is of it—is at least almost invariably pleasing, and is occasionally delightful; although we are not able to extend this praise unreservedly to the American examples, some of which have a curious hybrid appearance, while nearly all exhibit a pretentious fussiness of detail or of composition, or of both, which is in strong and disagreeable contrast to the suave serenity of the English home exteriors. The book includes also some examples of extra-Academy English work, as well as some charming examples of recent sculpture.

"Academy Architecture." Vol. 42. Edited by Alex. Koch, Architect. Pages xix. + 160, 7½ ins. by 9¾ ins. 58, Theobald's Road, London, W.C.

#### The Art and Craft of the Cabinet-maker.

Architects are showing a very healthy interest in furniture design, and should therefore desire to know something of the principles and methods of construction. Books on the handicrafts, however, are usually dismal things to handle, and it is only a conscientious regard for fulness of knowledge that ever induces an architect to consult them. Into this sorry category Mr. J. H. Rudd's "Practical Cabinet-Making and Draughting" certainly does not come. In its appearance it is by way of being a handsome book, and, what is at least equally important, the author knows how to write—an expression that, in a more material sense, may be applied to the neat lettering that adorns rather than disfigures his copious and well-drawn illustrations. In this matter of lettering, it is remarkable to what an extent distinctive character will out. Your engineer is determinedly and rigidly inartistic in the lettering of his designs; the architect affects a careless grace—not always quite successfully, the carelessness sometimes assuming a substantive form; and the handicraftsman's characteristic style is "base mechanical." Mr. Rudd seems to have evolved a style of his own—a happy compromise between the architectural and the cabinet-making hand, showing neither the frailty of the one nor the heaviness of the other. It is both legible and beautiful, especially in those instances in which the cabinet-making influence is least conspicuous. The diagrams themselves are excellent specimens of draughtsmanship, and between them they illustrate every

point of craftsmanship upon which an architect is likely to seek information. Particularly useful are the illustrations to the well-written chapter on "Style in Furniture," about a score of pages showing four or five times as many examples in the Jacobean, Queen Anne, Chippendale, Hepplewhite, Sheraton, Empire, and Louis XIV.—XVI. styles. The book, however, does not claim to be a work on design, but deals fully with the whole process of manufacture. The cabinet-maker (to whom its practicability and its low cost combine in an irresistible appeal) should be grateful for it, and the architect hardly less so.

"Practical Cabinet Making and Draughting." By J. H. Rudd. Pages x. + 172, 10¼ ins. by 8¼ ins. (large post quarto), price 4s. 6d. London: Benn Brothers, Ltd., 31, Christopher Street, London, E.C.

#### A Primer of Architecture.

"Educational journeys" are not confined to the junior members of architectural societies; the modern tendency in general education bringing us back "to the natural and primitive means of education through personal experience." School visits, in fact, have become so popular as to warrant the planning by Messrs. J. M. Dent and Sons of an "Educational Journey" series of small and cheap books, among which is included a "Notebook on Architecture." While this small book is necessarily and appropriately very elementary in character, it nevertheless conveys a very considerable amount of useful information, so well digested, and presented in such an attractive manner as to serve as an almost irresistible incentive to further study of its fascinating subject. The method adopted is the sweetly reasonable or simply and soundly philosophical handling which is so hopeful a note of modern education. It is not now sufficient to say "It is so." There is always an attempt to generalise on the facts, and hence to deduce principles which explain *why* "it is so." This method has been skilfully, and withal judiciously, applied in this primer, so that anyone reading it attentively will acquire, almost without effort, a quite respectable conception of the evolution of architecture. The illustrations are none the worse for being very old friends.

"The Notebook on Architecture." By Henry James Fox. With 138 illustrations. Pages viii. + 96, 4¼ ins. by 6¼ ins., price 1s. net. London: J. M. Dent and Sons, Ltd., 29 and 30, Bedford Street, W.C.

#### THE HALL I' TH' WOOD, BOLTON.

Hall i' th' Wood, near Bolton, offers an interesting example of "post-and-plaster" work, as well as of wattle-and-daub walls, in which green twigs threaded between stouter uprights are thickly covered with mud mixed with chopped straw. The earliest portions date probably from the fifteenth century, and stone additions were made in the sixteenth and seventeenth centuries. The hall, through the munificence of Sir W. H. Lever, has been presented to the Corporation of Bolton, and, after careful restoration, is now used as a museum. Measured drawings of it made by Mr. William J. Roberts are comprised in four plates which have been published in a portfolio at the Municipal School of Art, Manchester, Mr. Roberts having been a student at the Manchester School of Architecture, which is associated with the School of Art. The details in the drawings suffer considerably from overcrowding, and the number of sheets devoted to them ought to have been at least

doubled. As it is, the excessive reduction is prolific of "rotten" lines and almost illegible dimensions. Larger plates, or more of them, with fewer subjects to the sheet, would have done better justice to Mr. Roberts's painstaking work.

Portfolio of Measured Drawings: "The Hall i' th' Wood, Bolton." School of Architecture, Manchester. 1912. Published at the Municipal School of Art, Manchester. 16 ins. by 14 ins.

#### THE GREAT ORGAN FOR LIVERPOOL CATHEDRAL.

The new organ which is to be placed in the cathedral now in course of erection at Liverpool will be, when completed, the largest organ in existence. Up to the present time the organ in Sydney Town Hall has enjoyed that distinction. The Liverpool organ will take four years to construct; it will contain 215 draw-stops, speaking and mechanical, and the total number of pipes will reach the remarkable number of 10,567. Some interesting comparisons with other large organs already in existence is given in the "Musical Times," from which the following table is an extract:—

Date.		No. of speaking stops.	Total stops.
1900	London ... St. Paul's Cathedral	77	103
—	Vienna ... St. Stephen's Cathedral	90	—
1862	Paris ... St. Sulpice	100	118
1871	London ... Albert Hall	111	124
—	Riga ... Cathedral	124	—
1890	Sydney ... Town Hall	128	144
1912	Hamburg ... St. Michael's	163	—
—	Liverpool Cathedral	167	215

The new organ, which will occupy two special chambers in the first bay on each side of the chancel, is the gift of Mrs. James Barrow, of Waterloo, near Liverpool, and will cost £18,000. The specification for this remarkable instrument, which is of extraordinary length, has been drawn up by Mr. W. J. Ridley, a nephew of Mrs. Barrow's, and the builders are Messrs. Henry Willis and Sons.

#### LIST OF COMPETITIONS OPEN.

JANUARY 31.—MUNICIPAL BUILDINGS, JAMAICA.—For an open competition, in which a premium of £100 is offered for the design of municipal buildings to cost £9,000, particulars, price 2s., may be obtained from Messrs. Young, Ltd., 60, Fenchurch Street, E.C.

JANUARY 31.—HOUSING SCHEME, HEMEL HEMPSTEAD.—Premium, £20. Particulars (£1 1s.), Town Clerk, Hemel Hempstead.

FEBRUARY 3.—COUNCIL SCHOOL, HARROGATE.—The Borough of Harrogate Education Committee invite designs for an elementary school for 675 children. Particulars, C. E. Rivers, A.M.I.C.E., Borough Engineer, Harrogate.

FEBRUARY 22.—TRAINING COLLEGE, GLASGOW.—Limited to six selected architects.

MARCH 1.—MUNICIPAL BUILDINGS, RANGOON.—The Committee of the Municipality of Rangoon, Burma, invite architects to a competition for the designing and supervising of new municipal buildings. Premiums, £300, £200, and £100. Supervision may be delegated to a local firm of architects. Particulars £1, returnable from the London agents, Messrs. Ogilvy, Gillanders, and Co., Sun Court, 67, Cornhill, E.C.

MARCH 1.—CITY HALL, WINNIPEG.—Limited to British Architects in Canada. Assessor, Mr. Leonard Stokes, F.R.I.B.A.



## SIR THOMAS GRAHAM JACKSON.

It will be generally admitted that in the matter of New Year and birthday honours the architectural profession in the past has not received the recognition which it justly deserves. The baronetcy conferred upon Mr. T. G. Jackson, announced during the past week, may therefore be regarded not only as a personal distinction, but as an honour to architecture as a profession.

Sir Thomas Jackson, as all who know him will agree, is an artist of strong individuality, and one who has materially assisted in bringing about a more intimate association of the allied arts. For some time he was an active member of the Art Workers' Guild, of which he is a past master.

The name of Sir Thomas Jackson is

Sir Thomas is a Royal Academician, a Fellow of the Society of Antiquaries, and an Honorary Fellow of Wadham College, while Cambridge has conferred upon him the degree of Doctor. He has gained considerable distinction as a writer on architectural subjects, his published works including "Modern Gothic Architecture" (1873); "Dalmatia, the Quarnero, and



*Photo: Elliott & Fry.*

SIR THOMAS GRAHAM JACKSON, R.A., F.S.A.

The new baronet, whose portrait we reproduce on this page, was born in 1835. After finishing his University course at Oxford he became a pupil of Sir Gilbert Scott, beginning his career, as Sir Ernest George said when presenting him in 1910 with the Royal Gold Medal, "in the heat of the Gothic Revival." He thus acquired a knowledge of mediæval methods of building which he has consistently exhibited in his works; for the Gothic inspiration is felt in most of his buildings, although they may be clothed with forms or detail of other origin.

chiefly identified with the University city of Oxford, where he has designed many important works, including modern buildings for Brasenose, Lincoln, Corpus, Trinity, Balliol, and Hertford, the new Radcliffe Library, the Examination Schools, Somerville Hall, the City High School, and the High School for Girls; also the restorations of the Bodleian Library, St. Mary's and All Saints' Churches. To his credit at Cambridge are the new Law Library and Law School, as well as the Sedgwick Memorial Museum, among other buildings.

Istria" (1887); "Wadham College, Oxford" (1893); "The Church of St. Mary the Virgin, Oxford" (1906); and "Reason in Architecture" (1906).

As is generally known, Sir Thomas has made repeated visits to the Nearer East, especially to the Balkan States, where he studied Romanesque in its natural environment, acquiring so intimate a knowledge of the traditional method of building that the Dalmatians sought his advice in the building of the Campanile of their cathedral at Zara.

Sir Thomas has carried out many impor-

tant works of restoration, including Eltham Palace, Great Malvern Priory, Bath Abbey, and Christchurch Priory, with respect to which last, it will be remembered, he recently refuted the charge of vandalism levelled against him by the Society for the Protection of Ancient Buildings. The successful salving of Winchester Cathedral is the most notable of his recent achievements. Sir Thomas has designed a large number of churches in various parts of the country, and he is responsible also for important additions to many of the great seats of learning, including Eton, Westminster, Rugby, and Harrow.

*Sir H. H. Bartlett.*

Among the new Baronets in the Honours List is also the name of Mr. Herbert Henry Bartlett, who is a partner in the firm of Messrs. Perry and Co. (Bow), Ltd., the well-known contractors, and has other extensive commercial interests. He has been actively interested in the development of university education, and, in particular, has been a generous benefactor to London University. As in the person of Sir T. G. Jackson architecture is honoured, so the title of Sir H. H. Bartlett may be taken as reflecting the importance and prestige of the building industries.

## THE LIGHTING OF CITY STREETS.

The new scheme for lighting London City streets provides for lighting the whole of the main streets on the centrally hung principle which has proved so great a success on the experimental sections in Cannon Street and Cheapside. The obstructing lampposts in the narrow City pavements will be done away with. Gas and electricity will be used in equal proportions, and the work will be carried out by the gas and electric lighting companies whose systems supply the streets affected. Operations will be begun within a few days, and it is expected that the work will be completed within six months. Some time ago the Streets Committee of the Corporation, of which Mr. G. Gordon Stanham is chairman, visited by deputation the leading cities of the Continent, and it was as the result of their report on the lighting arrangements that they saw in vogue there that the Corporation, on their recommendation, adopted the present system.

The inspector of lighting for the City of Edinburgh reports that the lighting of the streets is now thoroughly satisfactory, and that it "not only commands the approval of the citizens, but attracts the attention of visitors and elicits commendation from other municipalities." The great improvement is due principally to the electric lighting of the tramway routes, the illumination by incandescent lights of other streets, the erection of lamps on the "islands" at the car stopping places, and the lighting of the side of Prince's Street, nearest the gardens. The corporation have been experimenting recently with a system of lighting and extinguishing the lamps by clockwork. The experiments have been carried out by the Gas Commissioners, by arrangement with the lighting department, but they have not been very successful. The system was tried on the public lamps in a street in the Portobello district. Further tests are being made with a series of nine lamps in another street. In this case the mechanism has, so far, worked much better than in the former experiment.

## OUR SPECIAL ISSUE.

We thought that there would be a large demand for the Special Issue which we published last week, containing a series of forty plates of interior domestic work in addition to an illustrated review of the most notable buildings of 1912, but the actual sale has exceeded our expectations, and there is now every likelihood that the issue will soon be out of print. Those, therefore, who have not already secured copies should not delay further in placing their orders, either with their newsagent or direct with the Publisher, Caxton House, Westminster.

The issue is dated December 31st and is published at 1s. net (postage  $\frac{1}{2}$ d.).

The forty plates of interior domestic work include chimney-pieces, staircases, panelling, etc., together with fittings for pantries, kitchens, and other rooms—all drawn up from the original working drawings, and, with a few exceptions, including small photographic reproductions showing the work as executed.

The following is a list of the architects whose work is thus shown: Mr. Ernest Newton, Mr. E. L. Lutyens, Mr. Mervyn E. Macartney, Mr. E. Guy Dawber, Mr. E. J. May, Mr. E. Turner Powell, Professor C. H. Reilly, Mr. W. H. Bidlake, Mr. Ronald P. Jones, Messrs. Nicholson and Corlette, Messrs. Geoffry Lucas and Arthur Lodge, Messrs. Richardson and Gill, Messrs. Woodhouse, Corbett and Dean, Mr. Oswald P. Milne, Messrs. Horace Field and Simmons, Mr. F. S. Chesterton, Mr. T. Millwood Wilson, Mr. Evelyn Hellicar, Mr. Percy E. Newton, Mr. J. M. W. Halley, and Messrs. William and Edward Hunt.

The buildings of the year, illustrated from a fine series of photographs, include the following:—

The Wesleyan Hall, Westminster (Lanchester and Rickards, architects).

The Midland Adelphi Hotel, Liverpool (R. Frank Atkinson, architect).

Whiteley's New Premises, London (John Belcher, R.A., and J. J. Joass, architects).

The Glamorgan County Hall, Cardiff (E. Vincent Harris and Thomas A. Moodie, architects).

Bristol Royal Infirmary Extension (H. Percy Adams and Charles Holden, architects).

Thames House, London (Stanley Hamp, architect).

New Stations at Harrow and Pinner (Gerald C. Horsley, architect).

New Medical Examination Hall, Queen Square, London (Andrew N. Prentice, architect).

Third Church of Christ Scientist, London (Lanchester and Rickards, architects).

The Montgomeryshire Infirmary, Newtown (Hastwell Grayson and Shephard and Bower, joint architects).

New Head Office for L. and S.W. Bank, London (Edward Gabriel, architect).

Additions to Wavertree Parish Church, Liverpool (Professor C. H. Reilly, architect).

Downside School, near Bath (Leonard Stokes, architect).

Birmingham Council House Extension (Ashley and Winton Newman, architects).

Extensions to the City School of Art, Liverpool (Willink and Thicknesse, architects).

Regent Street Polytechnic, London (Frank T. Verity and George A. Mitchell, joint architects).

New Pavilion, Margate (Ernest Borg

and Stanley C. Ramsey, joint architects).

New Premises for Royal Society of Medicine, London (John Belcher, R.A., and J. J. Joass, architects).

Royal Academy of Music, London (Sir Ernest George and Alfred B. Yeates, architects).

## OUR PLATE.

Monumental staircases are generally effective, but it would be difficult to excel the grand staircase in the Palais de Justice, Brussels, illustrated on the Centre Plate in this issue. There is the same massive dignity about it which pervades the whole building, and while here, as in other parts of the design, a certain coarseness is noticeable, it does not mar the total effect, which is extremely impressive.

## THE RE-PLANNING OF PARIS.

The Municipal Council, in the special session now being held, is considering agreements concluded by the Prefect of the Seine and the Ministers of Finance and of War for the acquisition by the Municipality of the girdle of fortifications and the military zone around the city. For over thirty years this transaction has been the subject of negotiations between the State and the Municipality, and there now seems some prospect of its conclusion before the end of the present year. The razing of the fortifications of Paris has long been the dream of Parisians who, five times since the days of the Romans, have outgrown their city walls. From a military point of view the dismantled walls erected in 1844 are, of course, of no value, but under the ambitious scheme about to be discussed the best possible hygienic and æsthetic use would be made of the land at present lying idle, so that Paris would be provided with a ring of open spaces, playing fields, gardens, and boulevards, which would be of inestimable advantage to the health of her citizens, and form a splendid frame for her architectural beauty. Large portions of the fortified enceinte will be reserved for the erection of dwelling-houses, the architectural details of which will have to be approved by the Municipal Council. These buildings will face a large shady boulevard, which will place a ring of green round the city and form an avenue of unusual beauty, as on the side away from Paris it will be bordered by gardens and playing fields to be laid out in the so-called military zone. This portion of land to be bought by the city will be kept entirely free from the operations of the builder, and existing houses will be pulled down.

The cost of execution of this great improvement, the Paris correspondent of "The Times" says, cannot yet be fully estimated. The price agreed upon by the Prefect of the Seine and the Minister of Finance for the fortifications and the military zone is £4,000,000, to be paid in instalments of £200,000 for the first eight years and then by annual amounts of £80,000. M. Dausset, the reporter on the proposal in the Municipal Council, estimates the cost of razing the fortifications and laying out the new roads and gardens at £4,800,000, and about £500,000 will be spent upon erecting a railing around the city in order to safeguard the interests of the Octroi. Against these expenses the Municipality will have sums realised by the sale of building land.



## THE LONDON SOCIETY AND ST. VEDAST'S CHURCH.

Mr. H. J. Leaning, hon. secretary of the London Society, writes:—The proceedings at the meeting of the Court of Common Council on December 12th tend to show that there is some misapprehension as to the aims of the London Society in connection with the rebuilding of the General Post Office in St. Martin's-le-Grand. The Improvements and Finance Committee reported that they were unable to recommend the making of the new street suggested by the London Society, although further improvements were necessary at Sweeting's corner.

The suggestions which the society submitted to the City authorities, and subsequently also to his Majesty's First Commissioner of Works and the London County Council, had reference rather to the making of such arrangements at the present time as would render it possible in the future to extend Newgate Street in an easterly direction to London Wall as an alternative route through the City. The point the society made was that unless the new Post Office building were somewhat curtailed at its south-eastern angle—i.e., where it abuts on Foster Lane—the formation of the road in question would involve the demolition of the beautiful little Church of St. Vedast erected by Sir Christopher Wren.

It was felt by the society that possibly the close juxtaposition of the church and the Post Office had not been fully realised, and that with a very slight variation in the form of the south end of the new Post

Office all cause for fear in respect of Wren's church would be removed. . . . In later years, should Sweeting's block be removed, the new Government building with St. Vedast's Church on the right would be fully exposed to view from St. Paul's Bridge, and form a fitting architectural termination to the magnificent new thoroughfare about to be formed at the east end of St. Paul's Cathedral.

## BUILDING IN CEYLON.

We reproduce on this page a photograph showing a modern building in course of erection in Colombo, Ceylon. The rickety-looking scaffolding at once attracts attention, and makes one think that a merciful Providence must watch over the workmen in Colombo; but of greatest interest are the men themselves. This is a strange company to Western eyes. The builder's labourer in a skirt would be the subject of peculiar attention in England; but this is a case of other men other modes! Judging from the photograph, there appears to be no lack of workmen in Colombo, and it would seem almost to be a case of two men one job.

The Grand Oriental Hotel is estimated to cost about £200,000, and is therefore a very large building. It will have all modern conveniences. Mr. Charles Stevens, F.R.I.B.A., is the architect, and Messrs. Ralph Macdonald and Co. are the contractors. The sanitary, hot-water, steam, and fire-hydrant installations are being carried out by Messrs. Mellows and Co., Ltd., of London and Sheffield.

## MAIN ROADS AS A NATIONAL CHARGE.

An important recommendation with reference to the upkeep of main roads is made in a special report [347], published last week by the Select Committee on Local Legislation.

There were referred to the Committee all private Bills promoted by municipal and other local authorities by which it is proposed to create powers relating to police, sanitary, or other local Government regulations in conflict with, deviation from, or excess of, the provisions of the general law. Among the Bills considered was one promoted by the Keighley Corporation, which obtained powers to run trackless trolleys on specified routes, both within and beyond their boundaries. On district roads and county roads beyond the Corporation boundaries it was provided that for widenings deemed necessary by the road authority and approved by the Board of Trade the Corporation shall pay one-third of the cost; but shall not be required to contribute to the cost of widening a bridge or acquiring any building for the purpose of widening any road. Having regard to the particular circumstances of the locality, it was not thought right that the Corporation be called on to contribute to repair of the roads outside their boundaries over which the trolleys will run.

The Committee, after recording these decisions, say: "Your Committee is of opinion, in view of what has taken place over the Bills promoted by the Corporations of Keighley, Rotherham, and other



GRAND ORIENTAL HOTEL, COLOMBO, IN COURSE OF CONSTRUCTION.

CHARLES STEVENS, F.R.I.B.A., ARCHITECT.



bodies, that the time has arrived when an authority should be constituted to decide which roads should be the main roads of the country, and that the cost of their maintenance should be taken off the rates and put upon the taxes."

Lord Leigh, writing to "The Times" on the subject of road-making and road-maintenance, holds that it would be well if road surveyors were convinced of the fact that earth is useless, and worse than useless, as a so-called binding. Even if on the main roads its use is being more or less discontinued, the illusion as to its value, he says, still leads to its being continually laid down on the by-roads. It cannot, he concludes, be too much impressed on surveyors that earth causes, when the roads are dry, the very dust that it is sought to obviate by the use of dust-preventing substances.

## NEWS ITEMS.

### *Hospital Stores.*

Messrs. E. H. Shorland and Brother, Ltd., of Failsforth, Manchester, have received a repeat order to supply their double-fronted patent Manchester stoves with descending smoke flues to the Napier Hospital, New Zealand.

### *Advance in Wages of Builders' Labourers.*

As the result of negotiations between the London Labourers' Council and the London Master Builders' Association, the latter have agreed to advance the labourers' wages by  $\frac{1}{2}$  d. per hour, to take effect as from January 4.

### *A Correction.*

On page 837 of our Edition de Luxe the new building for Messrs. Lever Brothers there illustrated is stated to be in Birmingham, whereas it is in Manchester. The whole of the exterior, it may be noted, is carried out in Burmantofts stone-coloured terra-cotta, supplied by the Leeds Fireclay Co., Ltd.

### *Dissolution of Partnership.*

Messrs. Warwick and Hall announce that they have terminated the partnership which has hitherto existed between them. The work in progress at the present time under their direction will be carried through in partnership until completion, and they will remain at the same address.

### *Liverpool Exhibition, 1913.*

The exhibition which is to be held at Liverpool from May to October, 1913, will be situated on the Edge Lane Hall estate, and Messrs. Walker and Ramsay, of Glasgow, are the architects. All the colonial and foreign governments have been invited to participate, and the industries, imports, and exports of the port of Liverpool will be fully represented. The offices are at 31, North John Street, Liverpool.

### *Defective Roofing Tiles.*

It is officially announced that the Science Standing Committee of the Royal Institute of British Architects invite members and others interested to forward particulars of instances of defective roofing-tiles which have come to their notice. It is desirable where possible that such particulars should be accompanied with samples of such defective tiles, with any remarks upon the nature of the defects and their cause, also giving information as to the make of the tile—i.e., hand-made or otherwise—with its place of origin, and any remarks upon the nature of the material from which the tiles were made.

### *Cement Trade Flourishing.*

English cement trade activity was reflected last week in the decision of the directors of the Associated Portland Cement Manufacturers, Ltd., to grant their employees a bonus of 5 per cent. on each man's wages. The directors have further decided to grant until further notice a weekly bonus of 5 per cent. on each man's wages. The first bonus will be given on January 10. The company's mills are situated on the banks of the Thames and Medway.

### *Australian Commonwealth Buildings.*

Mr. J. S. Murdoch, Public Works Architect of the Commonwealth of Australia, having settled satisfactorily some outstanding architectural questions in relation to the new Australian office in Aldwych, is leaving for the Continent. The Federal Government having large architectural undertakings in hand or in contemplation, Mr. Murdoch will, on its behalf, make a special study of the public buildings of Berlin and Vienna, continuing his inquiries in the United States, for which he leaves at the end of January.

### *Two New Paris Thoroughfares.*

Two new thoroughfares, the Rue Edouard VII. and the Rue des Italiens, both leading on to the boulevards, are nearing completion, and will shortly be open for traffic. The former, running from the Boulevard des Capucines to the Rue Caumartin, will be divided into two portions by the Place Edouard VII., where a palatial hotel is being erected. An immense underground music-hall will be another feature of the new street. The second portion of the Rue Edouard VII. will be in the form of an arcade, occupied by shops of the best class. The site and building are owned by an English syndicate, and when complete the total cost will have reached nearly half a million pounds. A large part of the contract work has been done by English firms employing English workmen. The new Rue des Italiens commences on the site of the old Nouveautés theatre, and runs in modified crescent form to the Rue Taitbout. Here also the street will be lined with high-class shops, which even before completion have all been let at enormous rents.

### *The Royal College of Art.*

The Association of Old Students of the Royal College of Art, South Kensington, held its first annual dinner last week at the Café Monico, Mr. Alex. Fisher, the president in the chair. Mr. F. P. Brown, the hon. secretary, said that the college traced its history back to 1837, and the main object of the Old Students' Association, which comprised 116 members, was good-fellowship and the well-being of the students. Mr. David Murray, R.A., in proposing prosperity to the Association, said that no wise man ever considered his studentship ended, and there certainly need be no end to the usefulness of that Association. Efforts were being made to put art systematically in touch with Parliamentary work, and the students could combine with the Imperial Arts League so that Parliament might be kept in touch with art and they might even get a Fine Art Minister. Such a Minister was very much wanted. They were glad that the Royal College was to be housed in new and suitable premises. Their class in sculpture was the very finest in Europe. Mr. George Clausen, R.A., a former student at the Royal College, responded and said the greatest use of the Association

would be in keeping the spirit young within them. Mr. John Eyre, vice-president of the Association, proposed the health of the guests, and Professor Selwyn Image replied.

## COMING EVENTS.

Wednesday, January 8.

Guild of Architects' Assistants.—Mr. J. E. Winfield on "Trade Unionism and the Guild," Room 22, St. Bride Foundation, Bride Lane, Fleet Street, E.C., at 7.30 p.m.

Thursday, January 9.

Sheffield Society of Architects and Surveyors.—Mr. H. I. Potter, A.R.I.B.A., on "The Work of Alfred Stevens." Leeds and Yorkshire Architectural Society.—Mr. Herbert T. Buckland on "Shop Talk." Concrete Institute.—Mr. W. Valentine Ball on "Concrete in its Legal Aspect," at 7.30 p.m.

Friday, January 10.

Birmingham Architectural Association.—Mr. J. B. Mitchell-Withers, F.R.I.B.A., on "Architects and Their Work, 1700 to 1750."

Monday, January 13.

Architectural Association.—Paper by Professor W. R. Cotton, A.R.A., at 8 p.m. Bristol Society of Architects.—Dr. Alfred C. Fryer, F.S.A., on "A Pilgrimage to St. David's Cathedral."

Wednesday, January 15.

Northern Architectural Association.—Mr. A. B. Plummer, F.R.I.B.A., on "Holiday Notes in the North of France." Edinburgh Architectural Association.—Mr. Arthur Seymour Jennings on "Recent Progress in House Paints and Painting, with Special Reference to Hygienic Paints."

Thursday, January 16.

Camera Club.—Mr. Laurence A. Turner on "Woodcarving," at 8.30 p.m. Society of Architects.—Mr. Herbert Freyberg, F.S.I., on "The Influence of Sanitary Science on the Comfort of Country Homes," 8 p.m.

Thursday, January 20.

Royal Institute of British Architects.—Mr. F. S. Baker, F.R.I.B.A., on "Canadian Architecture," at 8 p.m. Institute of Sanitary Engineers.—Presidential Address by Mr. H. Percy Boulnois, M.Inst.C.E., at 8 p.m. Liverpool Architectural Society.—Mr. E. Guy Dawber, F.R.I.B.A., on "Fountains."

Wednesday, January 22.

Manchester Society of Architects.—Paper by Mr. L. March Philipps. Edinburgh Architectural Association.—Mr. Ramsay Traquair, A.R.I.B.A., on "The Gothic Spirit."

Thursday, January 23.

Leeds and Yorkshire Architectural Society.—Mr. A. W. Hennings, A.R.I.B.A., on "Old Buildings in Cheshire." Sheffield Society of Architects and Surveyors (Students' Meeting).—Mr. C. E. Hill on "The Later Renaissance of Cambridge."

### *Notice.*

With this issue of the JOURNAL is published, free of charge, the Index to Vol. XXXVI.



THE  
ARCHITECTS' & BUILDERS'  
JOURNAL.

Wednesday, January 15, 1913.

Volume XXXVII. No. 940.

No. 16.



*(From Piranesi.)*



KNIGHT'S BANK, CASTLE STREET, FARNHAM, SURREY, BY NORMAN SHAW.

DRAWN BY HAROLD FALKNER.

(See page 74.)



# THE ARCHITECTS' & BUILDERS' JOURNAL.

JANUARY 15, 1913.

CAXTON HOUSE, WESTMINSTER.

VOLUME 37. No. 940.

## The Education of the Amateur Critic.

ONE of the most constant misfortunes afflicting the practice of architecture in this country to-day is the interference of the amateur critic. His voice is to be heard with exasperating persistence in the correspondence columns of the daily Press, proclaiming opinions that reveal little judgment and less knowledge. Whether the subject be the architecture of the new Delhi or the design of Messrs. Lanchester and Rickards's Wesleyan Hall, he rushes into print with equal assurance. The art of architecture is treated as common debatable ground, "a sort of waste place where anyone may shoot his vulgar sentiment." Architectural design is not admitted to be something difficult to understand, something requiring trained observation and, for its most intimate appreciation, considerable scholarship. That is dismissed as pedantry, archæology, the chicanery of the expert. The old Victorian tag about all great art having a simple universal appeal to the heart and not to the mind is served up whenever the competence of the lay critic is questioned. It is a popular theory, and one exploited to the full.

We should not be greatly concerned with these facts were it not that they do constitute a danger as real now as it was in the nineteenth century. Outbreaks of fallacious theorising are not without result. The effect of the epidemic in influential quarters is translated into visible, permanent blunders. There is little need to labour the case of Delhi in this connection. Half the London and provincial papers have been publishing at length the views of contributors whose literary facility is considerably in excess of their architectural, and sometimes even of their historical, knowledge. A kind of mob controversy has been initiated, the outcome of which, one may predict with fair certainty, will be extremely discouraging—the execution of the work in some grotesquely irrelevant fashion, to the plaudits of a crowd of benevolent but irresponsible persons.

Again, as the case of the Wesleyan Hall has shown, it is only sufficient for a building possessing certain merits to be erected in London for a small storm of adverse criticism to emanate from sources least fitted to express any opinion. In a public speech a distinguished civil servant indulges a vein of forced humour at the expense of work outside his competency. Editorial leaders appear in the morning papers expressing pious disapproval, and there is a general display of gratuitous officiousness, unrestrained by any feeling of diffidence or consciousness of imperfect qualification.

Now, however much we may condemn this state of affairs, however much we may deplore a popular arrogation of the right to judge without knowledge, we must confess that fundamentally the fault lies with the architects. There is never put forward a popular architectural suggestion so bad, but that some well-known member of the profession will be found to give it his whole-hearted support. The St. George's Hall odium scheme was a case very clearly in point. It is that kind of thing which, more than all else, creates

and fosters the belief that every outside opinion is valuable. The experts cannot agree, therefore the general public may indulge views.

The moral is obvious enough. If we are to mould an effective portion of popular taste so that its interest will be a help and not a hindrance, it must be through the training of the architects themselves. For they are to supply the tangible models, embodying consistent aims and presenting the true ideals in achievement. The creation of an environment of fine architecture lies with them. Even now every good design executed, such as the Ritz, the "Morning Post" building, the Royal Automobile Club, or Selfridge's, contributes more to the end of influencing lay opinion than any amount of spoken or written exhortation. A Ruskin, on the right side, might be a considerable asset to the cause of architecture to-day, but no literary campaign for the æsthetic salvation of the middle classes could be comparable in effectiveness to the erection of a mass of splendid work. It was the great American exhibitions that made the people of the United States want beautiful architecture. For the first time they actually saw it, and saw it on a large scale. It was the concrete example of the Pennsylvania Railroad Station that made them determine to have no more paltry terminals of the type they had known hitherto and that is still traditional with us. To begin by instructing the public in any other fashion is to attack the problem from the wrong direction. Undoubtedly it is a hopeful sign that there are now so many collectors of china, plate, and furniture. A sense of style is thus diffused. But, after all, we need something more promising than that. There can be no reliable safeguard but that of the education of the architects. By imposing a long and difficult system of academic and atelier training, such as exists in America, and making that a *sine qua non* to the adoption of the title "architect," the whole problem would be solved. It would be difficult for the public to obtain, for the execution of their commissions, the services of any but competent artists, possessing a common creed. Fifty years of consistent architectural production at a high level, and there would be a demand for serious work, inspired simply through contact with examples. It might be that a quarter of a century of educational spade-work would have to be done before the fruits of the policy could be generally apparent. But long before then the flood of amateur criticism would have been stemmed, and for that relief we should have every reason to be profoundly grateful.

The present is a critical period in the teaching of architecture, a period of transition, in which the issues are becoming increasingly complicated by the intrusion of new ventures. To what extent the various systems in operation are likely to be co-ordinated and organised it would be early to predict. Only this is certain. That until they do conform to some comprehensible scheme, any attempts to discourage lay interference will be unsuccessful, whilst the possibility of creating a useful public interest will be very remote indeed.

L. B. B.



### The St. Paul's Controversy.

**D**URING the past week Sir Alexander Binnie has introduced an acute element into the discussion over St. Paul's Cathedral by publishing in "The Times" a letter in which he says that the facts of the case have been misrepresented and that, in his opinion, there would not be the slightest risk in constructing the tunnel. One need hardly say that the views of the late Chief Engineer of the London County Council, embodying many years of experience of important undertakings, merit the very greatest respect, but when, as in this case, the whole problem turns on elements which are undeterminable, it is not convincing to be told by Sir Alexander Binnie that there is no cause for alarm: for the simple reason that the existing conditions of the foundations of St. Paul's are admittedly delicate, and their stability is entirely dependent on the water-bearing strata being left undisturbed, and no one can foretell what might happen if such works as those involved in the construction of a tramway tunnel within 65 ft. of the east end of the building were undertaken. Sir Alexander Binnie may be right in thinking that nothing would happen, but perhaps Sir Francis Fox—whose opinion, based upon an intimate knowledge of the cathedral, calls for equal respect—may be right, and in that case there would be a very grave risk of the building collapsing: in the face of which possibility we have contended throughout that the benefit of doubt should rest with the Cathedral authorities, for St. Paul's is a great heritage, whereas a tramway tunnel in connection with a bridge that is not wanted is of very little consequence in comparison.

The particular point in dispute which is raised by Sir Alexander Binnie's letter relates to the actual depth of the foundations of the Cathedral on the east side and the actual depth to which the tramway tunnel will extend. Sir Alexander says that the water level is "in all probability" 7 ft. below the foundations and that the bottom of the tunnel will be from 4 ft. to 5 ft. above the foundations, and then proceeds to affirm (1) that the tunnel foundations cannot undermine those of the Cathedral and (2) that they cannot abstract any water because they will be at a higher level. But Mr. Macartney points out that the foundations of St. Paul's go down below the level of the churchyard to 21 ft. 2 in. at the south-east corner and to 25 ft. 10 in. at the north-east corner, while the deposited plans show that the depth of the tramway tunnel below the roadway is intended to be 21 ft. at the south-east corner and 21 ft. 6 in. at the north-east corner.

Allowing that the roadway is 1 ft. 3 in. below the level of the churchyard, and that the foundation of the tunnel is 2 ft. 6 in. thick, this brings the bottom of the tunnel at the south-east corner to 3 ft. 6 in. below and at the north-east corner about 6 in. above the foundations of the Cathedral, and "deviation to the extent of 10 ft. is allowed." There is every reason, therefore, for the misgivings which this project has caused, and we trust that, when the time comes, the opposition will be sufficient to get the proposal rejected.

### The Red Houses in Regent's Park.

**A** VERY damaging case has been made out against the Government department which has been responsible for allowing a series of red-brick buildings to be erected for the Bedford College for Women in the Inner Circle of Regent's Park, and one is glad to know that the protests which have been made in Parliament and by those locally interested in the matter are likely to prevent any further encroachment on the amenities of the park. The reason for the protest is not so much that these houses are built of red brick—though that is out of keeping with the cream-painted stucco of Nash's dignified mansions which surround the area—but that they are a disturbing feature and might be the first of other undesirable

building schemes. It is true that there are already existent in the park a number of other houses, and among them not a few unsightly erections—such as the mid-Victorian conservatories of the Royal Botanic Society—but the policy laid down has been to allow the leases of these properties to lapse, and to endeavour to add the private grounds to the public area. It is quite true, as "The Times" says, that the laying-out of Regent's Park by Nash was part of "the only bold architectural scheme which has ever been executed in London, the scheme which to a certain extent defined and unified the West End," and though the developments of the past fifty years have made sad havoc with much of the scheme, Regent's Park has largely preserved its character; and it is to maintain this character, and at the same time to remedy those intrusions which have established themselves in the park, that the present protest has been made.

### Another Suggestion for the King Edward Memorial.

**A** CURIOUS suggestion in connection with the King Edward Memorial is made by Mr. Cobden-Sanderson. Taking into account the fact that the rebuilding of Regent Street Quadrant will include the re-arrangement of Piccadilly Circus, he suggests that Mr. Gilbert's fountain should be removed to the Round Pond in Kensington Gardens, and in its place a tall column should be set up with the "memorial" to King Edward on the top. That the existing arrangement of Piccadilly Circus is wholly unsatisfactory needs no emphasis, and that a fountain is not the most desirable object for the centre of such a circus is now generally accepted, but we do not think that in the comparatively restricted area in question it would be a happy idea to erect a big column like the Duke of York's. Moreover, the placing of a statue on the top of such a column never seems to us to be a successful arrangement. At all events, now that the King has made the suggestion to erect the memorial in the space between Pall Mall and the Duke of York's column, it is not at all likely that another change will be made. His Majesty's suggestion is, in our opinion, an excellent one, as the memorial would here be far more effective than it would have been on the site formerly adopted in the Green Park.

### The New Scottish Government Buildings.

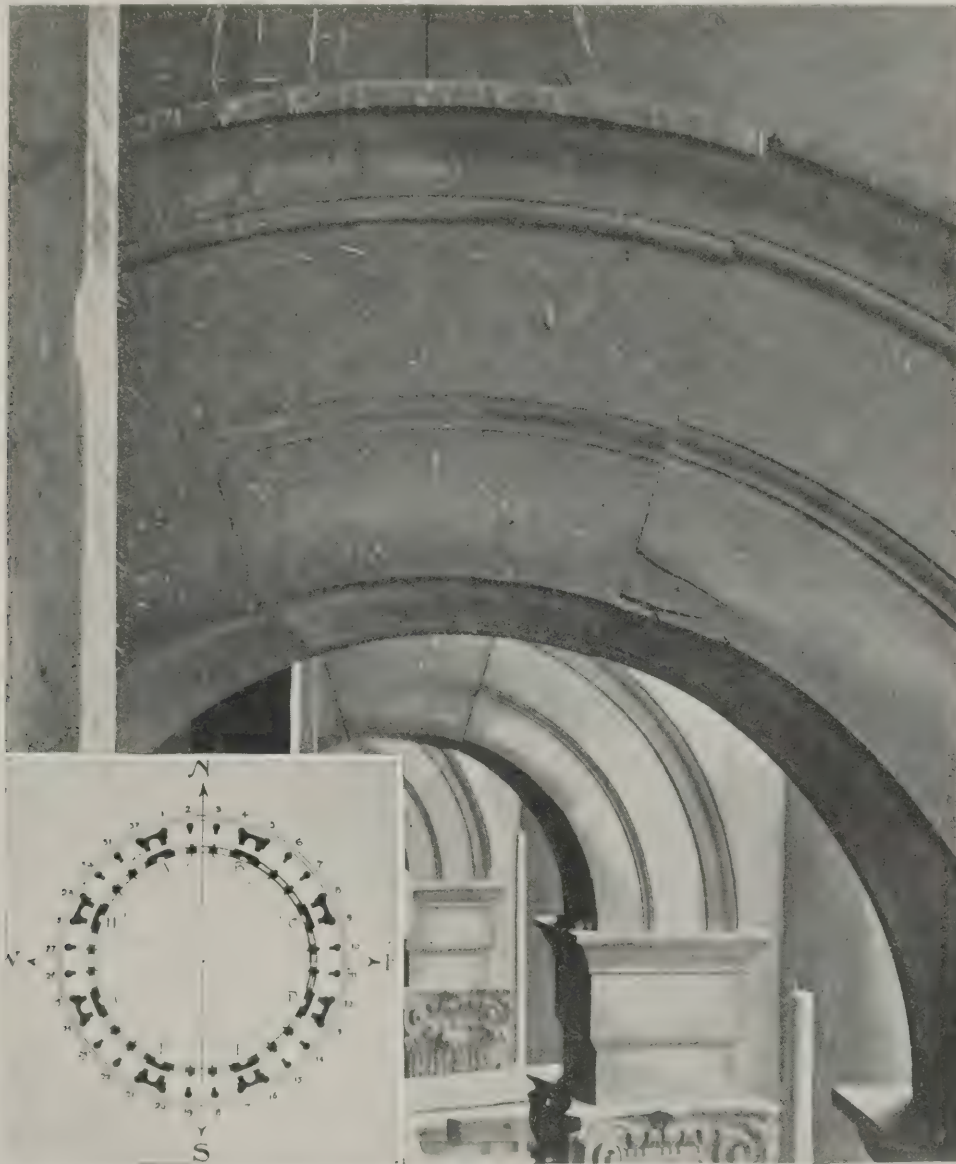
**I**T may have been assumed hitherto that the functions of the official architect were only misconceived parochially. It would seem, however, that in this respect the Government are equally benighted, as witness the remarkable confession of faith of Mr. Wedgwood Benn, who, heckled without mercy by Scottish members on the subject of the Calton designs, was driven to enunciate this banality:—"The existence of an architectural department in the Office of Works involves the general principle that designs and plans should be prepared within the department." This proposition raises more questions than it determines, but they need not be dealt with here. What is more to the point is the reaffirmation of the protest that it is unfair to saddle any architectural department, national or local, with the responsibility of designing large and important buildings like those destined for the Calton Jail site in Edinburgh; unfair to the general body of architects to deprive them of a legitimate competitive opportunity, and unfair to the public, who are entitled to demand the best building that the architectural profession can produce. We trust, therefore, that the Government will no longer hesitate to abandon a decision which is as unsound as it is unpopular, and that they will at once announce their intention to meet the wishes of Scotland's representatives by throwing the work open to competition. The cost of the buildings is set down at no less than £250,000.



## THE STRUCTURAL STABILITY OF ST. PAUL'S CATHEDRAL.

ON Friday evening last Mr. Mervyn E. Macartney delivered an interesting lecture on St. Paul's Cathedral in the theatre of the Aldersgate Street branch of the Y.M.C.A., Dean Inge presiding in the chair. Having described the two churches which formerly occupied the site, and having recounted the events which led up to the building of the present cathedral, Mr. Macartney said that Wren was brought face to face with the problem of constructing a huge building on the site of an old edifice. He took the right line of mistrusting the constructive ability of his

acted on in the United States. When he (Mr. Macartney) was in Chicago a few years ago this raft theory had been in practice some time. Chicago was built upon an area of alluvial deposit, with no sound foundation to be obtained without sinking to a depth of 80 ft., so the ingenious Americans had got over this difficulty by constructing steel rafts, in which they placed a slab of concrete. On this, skyscrapers were built up to twenty stories; but that was not high enough. When he (the speaker) was there, he saw the initiation of a



DETAIL VIEW OF ONE OF THE BUTTRESSES TO THE DOME OF ST. PAUL'S CATHEDRAL, SHOWING CRACKS AND DISLODGMET.

predecessors, and deliberately placed his foundations so that they as far as possible avoided the old ones. He (Wren) feared that the old and the new would not amalgamate, and he wished to build for eternity; and had it not been for the destructive ingenuity of modern engineers very little cause for alarm would ever have arisen.

Wren considered the layer of pot earth (about 5 ft. thick) resting on a stratum of sand and gravel, sufficient, though he knew that the latter was not to be depended on, and that if he discarded the pot earth he would have to go down to the clay, 40 ft. below. Wren's theory was precisely similar to that commonly

new system, i.e., pits of about 9 ft. or 12 ft. square were sunk down the 80 ft. to the solid rock, and filled up with concrete; so that practically it might be said the foundations were supported by pillars of concrete 80 ft. high and about three yards square in section. Now this was exactly what Wren did at the east end where the pot earth gave out. He dug down to the London clay and built up a pier of masonry 10 ft. square. It is noteworthy that this corner of the crypt is higher than the rest of the floor.

Tracing the history of the design and execution of St. Paul's, Mr. Macartney said the salient feature was the dome. Wren secured both Sancroft and Evelyn



as supporters for his pet scheme. All through the tedious and exasperating controversies that ensued about the restoration and rebuilding of the Cathedral, Wren clung to his main point—a dome in the centre. He gave way about the nave and the side chapels (with respect to which his first scheme had been the subject of much disapproval), but he never budged from his original proposal that there should be a dome. His first design having been rejected on the score of being uncathedral-like, and having no distinct nave or choir, Wren had to attempt to make a compromise by classicising a Gothic plan. All the detail inside and out was Classic. This extraordinary design, known as the "Warrant" design, was approved by the King as being "artificial, proper, and useful," May, 1675. Fortunately leave was given to Wren to make variations in it. That he did so is apparent to an extent that almost beggars belief. He (Mr. Macartney) was firmly convinced that Wren never intended to build the church on the lines of the accepted design, and that he only put it forward to meet the objections of his opponents and to secure certain features that he meant to have. Having referred to the "miserable and trumpery squabbles on money matters" which disfigured the concluding years of the completion of the building, Mr. Macartney said that among the points at issue between Wren and the Commissioners, and wherein the majority won, was the enclosing wall or railing. Wren had designed an arcading at a reasonable distance, terminating at the top of Ludgate Hill with a baptistery. This plan fell through in common with the great scheme of replanning the city, and Wren was compelled to narrow and confine his churchyard. He designed a railing of wrought iron of reasonable height, which was objected to, and against his wish a formidable and massive screen of cast iron was erected all round the church, much to its detriment.

Professor Beresford Pite, proposing a vote of thanks, said we were living in a generation which had seen the Campanile of St. Mark's, Venice, fall to the ground after 900 years, and unless we were careful we were likely to see the dome of St. Paul's crashing into the church, even as the central tower and spire of Chichester fell in 1808. They were all agreed, he thought, that no risk should be taken with St. Paul's. No paper guarantees or promises were of any use whatsoever, and the word "risk" was written large on any scheme which involved the disturbance of the foundations.

Mr. Macartney, in reply, said he did not like experiments, and the engineers were too fond of saying that the proposed excavations could be made without danger to the structure. His counsel, however, was that since there was a strong element of uncertainty it had better be left altogether alone.

We reproduce on the preceding page a photograph of one of the buttresses to the dome, showing alarming cracks and settlements. This dislocation, Mr. Macartney explained, had taken place practically all the way round the dome.

#### *The Experience of the Mercers' Company.*

The Mercers' Company have addressed a letter to Canon Alexander, Treasurer of St. Paul's Cathedral, in which they relate a recent experience of their own showing how impossible it is for the most experienced engineer to be quite sure of the efficiency of any mechanical precautions. When the Central London Railway Bill was before Parliament the company were advised by the most competent engineering authority that the tube underneath Cheapside would not damage the company's property, but that, as a matter of precaution, certain conditions should be insisted on which were afterwards introduced into the Bill. The work was in progress during 1898, and in July of that year cracks appeared in the pavement in front of the company's hall, and in August and September cracks began to appear in the building. Afterwards further

cracks appeared, and eventually there was a crack extending from the top of the building to the pavement in Ironmonger Lane, as well as many cracks in different parts of the building, and the movement caused the fall of several ceilings in the upper portion.

## THE "ARCHITECTURAL REVIEW."

A SUMPTUOUS NEW SERIES.

WITH the January issue, published on Friday last, the "Architectural Review" begins a new and enlarged series. The "Review" has always been distinguished for the high standard of its contents and the excellence of its printing, but it has now surpassed any of its previous achievements, and in its present form may fairly be considered as the most sumptuous architectural publication issued in this country.

In a "Foreword" it is explained that while the "Review," established eighteen years ago, has attained a paramount position—"the high esteem in which it is held being a source of gratification alike to the Editor and to the Proprietors"—it has been felt that a still wider field was open to it by reason of the increasing interest in architecture which has latterly been evinced by the educated section of the general public. The appeal of the "Review" has thus become more and more a dual one—to the architect professionally as one practising a great art, and to the educated layman able to appreciate the best work of architects and craftsmen. It has been thought that this dual representation would be materially assisted by an alteration in the size and form of the "Review," and in the January issue we see how the alteration has been effected. The "Review" now measures 14 in. by 11 in., as compared with 12 in. by 9 in. before; but the particular feature of the new issue is a fine series of sixteen photographic plates printed on thick paper, which are brought together towards the end of the issue. In themselves these magnificent plates should assure the "Review" a very greatly increased support. There is nothing equal to them in contemporary architectural journalism in this country. They range over a variety of subjects, including both old work and new: thus we find modern civic architecture represented by the Glamorgan County Hall at Cardiff (Messrs. E. Vincent Harris and Thomas A. Moodie, architects); modern domestic architecture by Tuesley Court, Godalming (Mr. E. Guy Dawber, architect), and two interiors of American houses by Mr. Charles A. Platt; and modern ecclesiastical architecture by the reredos in the Lady Chapel at Downside Abbey (Mr. J. N. Comper, architect); old work by some most picturesque buildings in Portugal and some details of woodwork and plasterwork in Oxford colleges—these being especially fine; while Iford Manor, near Bradford-on-Avon, furnishes some examples of garden architecture by Mr. H. A. Peto, which are of great beauty; and, lastly, furniture is represented by an Early Georgian side-table at "Ditchley," in Oxfordshire.

The principal articles in the issue include "Some Details from Oxford," by Mr. W. G. Newton; "Some Famous Buildings of Portugal," by Mr. Walter H. Godfrey; "Iford Manor and its Garden"; and a discussion on "Sanatoria for the Community," in which the medical and architectural problems are considered (with illustrations of the National Sanatorium at Benenden, Kent, and of a Colorado sanatorium on the tent system); the "Practical Exemplar" being concerned with a doorway at St. Helen's Church, Bishops-gate.

Altogether it is an excellent number, and one which all who are interested in architecture should not fail to obtain. The price (1s. nett) remains as before, despite the sumptuousness of production.



## THE PROBLEM OF SMOKY CHIMNEYS.

BY EDWIN GUNN, A.R.I.B.A.

PROBABLY no single circumstance has caused more after-trouble and annoyance to architects and builders than "smoky chimneys." The behaviour of chimneys seems so capricious—conditions which, to all appearances, are precisely similar so often producing different results—that it may be doubted if any practicable means can command success, but there is obviously no justification for neglecting the many safeguards which may be adopted in construction on this account, for, if all reasonable precautions are taken, the blame attaching to a poor result is, at any rate, lessened, and where such precautions meet success the disfigurement of tallboys and cowl is at least prevented.

Avoiding the consideration of different patterns of grates and blowers (with the general remark that those patterns which bring the smoke outlet closest above the fire are generally the best draught-creators and the most expensive in fuel), and confining our remarks solely to the chimney itself, it is seen that it requires special treatment at two points, apart from the course of the flue or shaft.

A frequent source of lack of drawing power is the occurrence of cavernous spaces immediately above the fireback, usually due to the fire-opening having been arched over wider and at a higher level than neces-

sary, and the void so left remaining unfilled after building in the grate, as in Fig. 1. Such voids should be filled up to the gathering with bricks and mortar.

The gathering or throat itself is often carelessly done; it should be accomplished as quickly as possible, and as close above the fire as may be. There are several patented articles on the market by which the need for brick gathering is altogether dispensed with, the flue being started off an iron base-plate combined with the chimney bar or by a fireclay base or funnel built into courses during erection.

One of the most important desiderata for securing strong draught is that chimneys should be dry and warm. Height in a chimney is also important in order to increase the length of the column of warm air, which is the motive force in the case. In both these connections the advantage of planning fireplaces on internal walls, and grouped rather than placed singly, is readily apparent; not only are such chimneys protected from the cooling effect of the outside air for the greater part of their height (incidentally dispensing their warmth inside instead of wasting it), but they will usually emerge from the roof at the ridge rather than at the eaves, with proportionate gain in height, and, if grouped, not only keep one another warm, but gain in structural solidity.

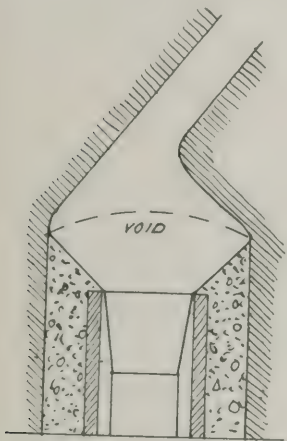


FIG 1

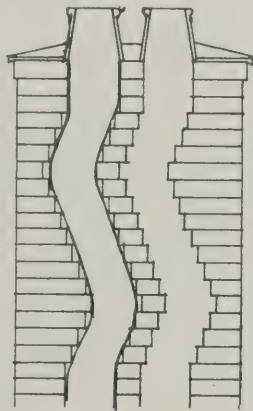


FIG 2

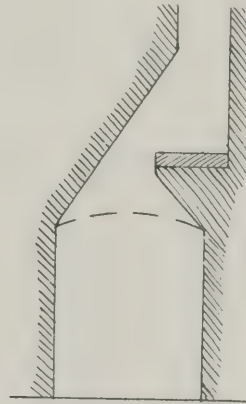


FIG 4.

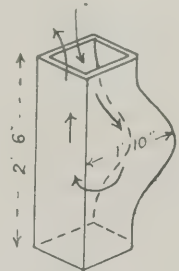
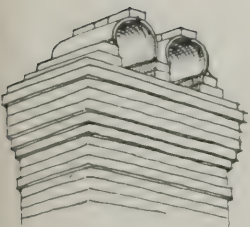
9" SQ. INSIDE  
FIG 3

FIG 5

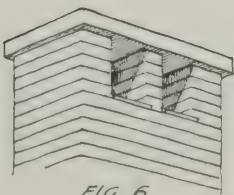


FIG 6

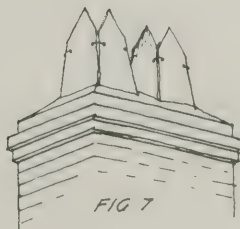


FIG 7

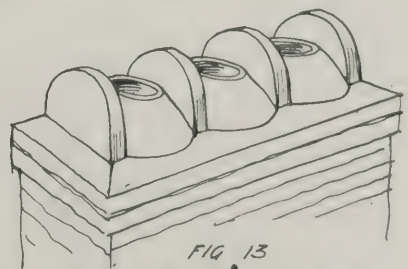


FIG 13

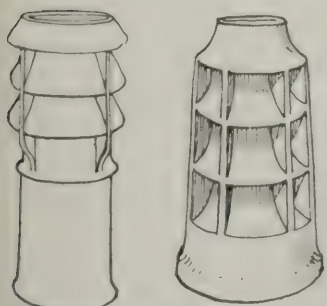


FIG 8



FIG 9

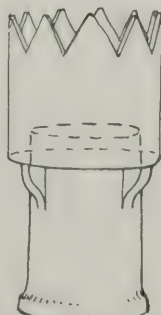


FIG 10

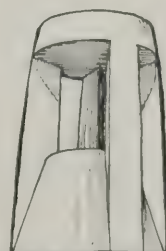


FIG 12

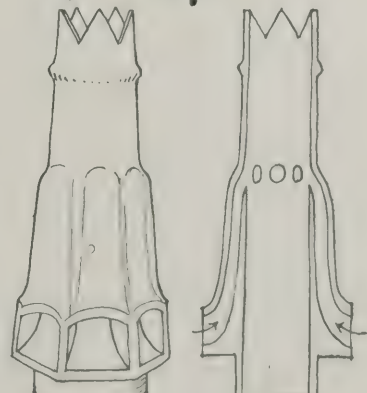


FIG 11



The external walls of chimney-stacks should always be 9 in. thick all round where possible, but if necessarily less than this the sides facing the prevailing wind should at least be of this thickness as a protection against driving rain. In exposed situations a damp-course just above roof level is most desirable, as chimneys catch the rain to an astonishing extent, and become so saturated that they refuse to draw; they also conduct dampness into the roof space below. Height without dryness is insufficient; the lofty separate flues of the splendid Tudor chimney stacks are usually very bad in draught owing to their exposure to cold and wet. In their case improvement frequently results from reduced height, which, it may be assumed, allows the column of air and smoke to escape before becoming chilled.

It is a matter of commonplace that every flue should have a pronounced bend during its course, a rough test of sufficiency being that light should not be visible when looking up from below. It is not, however, altogether a matter of indifference at what point the bend occurs. One of the purposes served by a bend is to prevent rain falling directly down the chimney, so rendering it damp and causing sluggishness and falls of soot, and it is obvious that a bend near the top preserves a larger proportion of the flue dry than one which occurs immediately above the gathering. It is often found advantageous to form a small, quick twist just below the chimney cap (independently of any other bends lower down) for the purpose of catching rain, and this will also help in baffling down draught (Fig. 2). The latter function is also aimed at by another simple patent article—a form of baffle chamber for building into flues (Fig. 3). The theory in this case is that the wind on entering the flue penetrates as far as the chamber and there eddies, loses its force, and is overcome by the up draught.

A very useful final baffle may be formed immediately above the throat, as shown in Fig. 4. The flat table may be covered with a stone slab or an oven tile. This is a valuable expedient against down-draught in the case of flues necessarily almost straight, but has the disadvantage that loose soot collects on the table and puffs off when gusts of wind strike it. When the fire is alight and drawing, no inconvenience results, but if the grate is empty it descends and finds its way into the room.

Pots are an economical and convenient way of increasing the length of flues, but very few chimneys are improved in appearance by them. Their omission, however, entails consequences which should be remembered. Soot and leaves are liable to rest on a flat-topped chimney cap and to drift down inactive flues in a manner the reverse of pleasant. Downward-striking gusts so common with a south-west wind also find their way more easily down flues not equipped with pots, cones, or steeply weathered heads. All things considered, a pot makes the best practical finish for a flue, and its use should not be shirked because the most delightful chimneys of the Tudor and early Renaissance periods knew it not.

Down-draught, the bugbear of chimney design, upon revealing itself, is usually attacked at the head either by the contrivance of some form of protection against direct down-blow, such as may be caused by neighbouring hills, trees, high roofs, or buildings; by formations intended to deflect winds upwards; or by a combination of both. There is a curious localism about the methods adopted. In and around Buckinghamshire the "bonnet" formed by lengths of half-round ridge tile somewhat precariously balanced against one another and weighted by bricks in the manner of the card house of our young days (Fig. 5) is common, and seemingly successful; chiefly in North Wales the device of raising the withes and end walls about 12 in. above the flue top and supporting thereon a stone slab is often seen (Fig. 6); in some parts of the north Midlands the slate pot formed of four pointed

slates is usual (Fig. 7); and yet again the insertion of upwardly inclined agricultural drain-pipes some little distance down the stack is occasionally resorted to. In addition to these, the number of patented smoke-preventing pots, cowls, and tallboys is legion, and their appearance generally disastrous.

The pots may be roughly classified under three heads—the louvred, the serrated, and the ejector, each principle appearing singly and in combination. The former are designed to deflect a current striking the louvres, which then partly escapes upwards through the open top and partly through the louvres on the leeward side (Fig. 8). The serrated pot (Fig. 9) is based on the slate pot before illustrated—its principles are somewhat mysterious, but its success on some occasions has been marked. The ejector pattern either has an annular opening surrounding the smoke outlet which is protected by an outer collar (Fig. 10) or a series of converging and diminishing air passages, as in the "Champion" (Fig. 11). The "Edwardian" pot (Fig. 12), perhaps the least objectionable in appearance, rather defies classification—its principles are stated to be that the thick outer edges of the dish and legs act as baffles on the windward side and lulls to leeward, while the edges towards the inner cone offer no obstruction to the passage of smoke. The covered top keeps the flue dry.

One further trouble may be cited—a tendency for smoke from active chimneys to be blown or drawn down adjacent inoperative flues. The use of any of the down-draught preventing pots or caps usually avoids this trouble, or it may be obviated by the use of ordinary pots of varying height, or flue partitions between the outlets (Fig. 13).

## THE NEW FEDERAL BUILDING, CLEVELAND.

(Concluded from p. 33, No. 939.)

THE whole Superior Street frontage is occupied by a public corridor, which can be entered not only from Superior Street itself, but from the Public Square on one side and from Wood Street on the other. Thus access is obtained from three directions; and the counters provided for the stamp clerks, the mailing boxes and the like, occupy the central portion of this corridor. The elevators, giving access to the floors above are situated off the main corridor at either end, and they can be conveniently approached without interfering with the crowd whose business concerns the post-office alone. Still more private are the offices of the Registry and the Money Order Departments. They are provided with a separate room on the Wood Street side, cut off from the public corridor; and in this room a man can count his money and transact his business in semi-privacy, just as he could in a properly planned bank. The individual offices of the postmaster, the assistant-postmaster, and the cashier are situated on the floor above, and connected with the main floor by private lifts and staircases.

The Government is a conscientious employer, and takes good care of its employees. In the basement abundant space is provided for lounging rooms, both for the clerks and the carriers. These are well-lighted, well-ventilated, and comfortable apartments, to which are attached well-equipped toilet-rooms.

The next most important rooms to those devoted to the Post-office are, of course, the two court rooms provided for the district and circuit courts. The third floor is given over entirely to this service. Besides the two large rooms in which court is held, the judges have, of course, their own private apartments, together with



the court library, consultation rooms, and accommodation for the clerks. In addition, there are a grand jury room, offices for the marshal and his assistants, and places in which witnesses and prisoners can be temporarily detained. In planning the court room Mr. Brunner has sought not merely to give them a certain grave and handsome dignity of effect, but also to make them thoroughly convenient. They are lighted by large windows on the north side, so that, while an abundance of illumination is provided, the sun never actually enters them. The spectators have these windows on one side, the jury have them at their back. The intention was to dispense entirely with any necessity for window shades. Unfortunately, however, it has been found that the lawyers, when they address the jury, are obliged to look directly into this north light, while at the same time they find difficulty in distinguishing the faces of the men they are addressing—the consequence being that shades or curtains may after all have to be provided for the windows. By an ingenious arrangement the judge leaves the platform on which the bench is situated and reaches his private apartment through a private door without being obliged to descend any steps in public, for which he will most assuredly be grateful to the architect. Entrance to the court room is through two doors, one for counsel and the other for the public. When the jury leaves the jury box, it passes directly to the jury room under the eyes of the judge.

The rest of the building is devoted to offices of many different sizes, and used for a variety of purposes. The great majority of these offices are finished as plainly as they would be in an ordinary office building; but in certain cases Mr. Brunner felt justified in designing somewhat handsomer and more expensive rooms. The corridors, for instance, are ordinarily most simply

treated, and are distinguished from those in office buildings only by the use of better looking and more permanent materials, but the end of the hall leading to the court room has four columns of Cippolino marble, and the vestibule is finished in white Pentelikon marble. Then the offices of the heads of the more important departments, such as the collector of the port, the postmaster, the district attorney, and the like, have been decorated with unusual elaboration. They are all panelled rooms, and almost all of them contain mural paintings, specially painted, of course, for the places they occupy. Thus in the office of the collector of the port there is symbolic representation by Mr. Kenyon Cox of Commerce paying tribute to the Port of Cleveland. In the appraiser's office Mr. Will H. Low has designed a mural decoration, entitled "The City of Cleveland, supported by Federal Power, welcomes the Arts bearing the plan for the new Civic Centre." In the district attorney's office "The Battle of Lake Erie" has been portrayed by Mr. Rufus F. Zogbaum, while the postmaster's room will eventually contain a decoration by Mr. F. D. Millet on a frieze some five feet in height above the Circassian walnut panelling. The decoration of the court library and the mural paintings at the end of it were executed by Mr. Frederic Crowinshield. In painting all the interior plaster work of the building the architect was assisted by Mr. F. D. Millet, and the visitor will instantly recognise with what uniform good taste and subordination to the essential values of the design and the neighbouring materials this work has been done. He will also recognise that the electric fixtures, the rugs and the furniture of all these specially designed rooms, contribute to the general effect, and have evidently and most fortunately been confided to the architect of the building.



NEW FEDERAL BUILDING, CLEVELAND, OHIO: COURT LIBRARY. ARNOLD W. BRUNNER, ARCHITECT.

MURAL PAINTING BY FREDERIC CROWINSHIELD.



## HERE AND THERE.

THE Winter Exhibition of the Royal Academy has afforded the opportunity for many critics to say, in the newspapers and elsewhere, that Alma-Tadema was of course a wonderful painter of marble, but that, for the rest, he was of small account—a man exceptionally dexterous with his brush, but a mere illustrator of dead facts in an unimaginative way; possessing a faculty for pleasant composition and colouring, but without “verve,” without “soul,” without “emotion.” Not being in agreement with this estimate of Alma-Tadema, I was pleased to read Sir Philip Burne-Jones’s eulogy of his work in “The Times,” and Sir William Richmond’s brief, though whole-hearted, support of the same point of view. Sir Philip Burne-Jones says: “The hand of man has never surpassed, if it has ever even equalled, the skill displayed in some of these pictures. There is more real sunlight and *joie-de-vivre* in a single square inch of such a painting as ‘God-speed!’ or ‘A Dedication to Bacchus’ than in the entire output of the Impressionist School, from its crude inception of palette-scrappings and disagreeable surfaces forty years ago, to its latest and most sordid manifestations. . . . Yet this feast of beauty—these blue southern skies, these roses and oleanders, these summer seas, these surfaces of luminous marble absorbing and reflecting light in ways hitherto undreamed of in the realms of art—all this beauty, when set before the professional critic, has met with recognition so grudgingly accorded, so sourly querulous because the viands offered were not of his own particular brand, that one is tempted to inquire what it is which the average writer about art in the London newspapers of to-day really looks for in a picture—whether he even knows what he wants himself, or, when his attention is called to a fine thing, whether he is any longer capable of appreciating it when he sees it. . . .”

I have not the slightest intention of plunging into this controversy, but after a visit to Burlington House and a study of the 200 works there exhibited, I wish to express my own opinion that Alma-Tadema was not so great a master as his eulogists affirm, but that he was a far greater painter than the Matisse-lovers think, and if anyone likes to try the experiment of walking around the rooms at the Academy and then paying a visit to the Post-Impressionists at the Grafton Galleries, I cannot imagine that his preference would be for the latter. But in such matters finality is impossible, for the whole world of art criticism moves in a vicious circle; and the work of any artist who makes the turnstiles go merrily round at Burlington House is thereby damned by all who hold the true faith and are passing on the torch.

From the architect’s point of view it seems to me that the chief glory of Alma-Tadema’s pictures is not merely in their representation of marble, but in the reality of ancient architecture—and Roman architecture especially—which they set before our eyes. Gazing on the great ruins, on broken fragments or detached details in museums, or on photographs and drawings of them in books, we are accustomed to think of the classic buildings of antiquity as though they had never once been new; and it is just in their quality of setting the reality before us that Alma-Tadema’s pictures fasten our attention. Standing before “Caracalla and Geta,” we can realise what the Coliseum must have looked like on the occasion of a gala performance—the marble all aglow in the rosy light that filtered through the great velarium, the tiers of seats filled with spectators, and everything having a *living* appearance which the studious restorations of archæologists are utterly devoid of. Who, for example, from Canina’s drawings can gain any conception of

the actual appearance of the Roman baths? Whereas in Alma-Tadema’s paintings we are in the midst of actuality. He makes us not archæological students, but contemporaries of the great days of Rome and Greece. We see Phidias on a scaffold showing his friends the newly-completed frieze of the Parthenon; we get glimpses of Greek temples, in bright colour; we are shown a Roman atrium, and feel ourselves to be in the midst of it just as much as we might be in a Chelsea sitting-room to-day: and if a painter can gain such effects as these, surely he is a far greater artist than some critics would have us believe.

\* \* \* \*

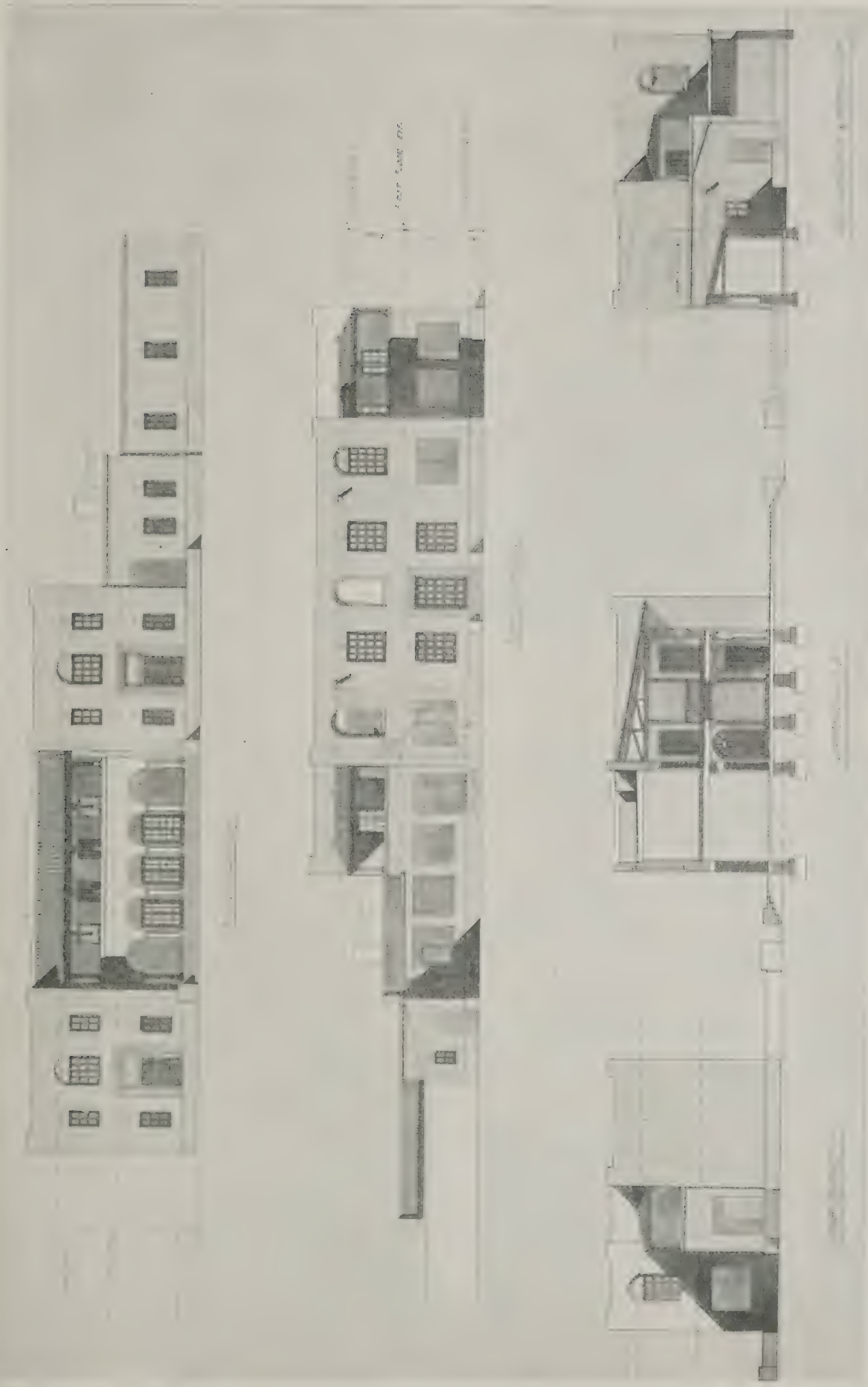
Having noticed not infrequently some strange names under illustrations in the American architectural papers, I thought that a glance through the list of members of the American Institute of Architects might furnish material for a paragraph in these columns; and my trouble has not been fruitless. Doubtless the R.I.B.A. Kalendar would not be devoid of similar interest, but it could never offer such a wealth of nomenclature as the American list, for the reason that men of all nationalities have followed the Pilgrim Fathers, and, as a consequence, the people of the United States are not a single nation, but a mixture of many, all assimilated in such an astonishing way that, whatever the original nationality of the immigrant, he is eventually metamorphosed into an American. Englishmen, Scotsmen, Dutchmen, Frenchmen, Germans, Swedes, Poles, Russians—all have gone to that wonderful land across the Ocean, and have there become nationalised. They have intermixed and intermarried, and the result is an American—unmistakably a distinct type, with his own individual character; yet now and again we get a glimpse of another nationality, while the names of the men who now people the United States are eloquent of the cosmopolitanism of America. Thus, in looking through the list of members of the American Institute of Architects, I find an obviously English name like John Marshall, a Scotch one like James MacLeod, an Irish one like Jeremiah O’Rourke, a French one like E. L. Masqueray, a German one like Albert S. Gottlieb, a Polish one like H. P. Schnetzky, and a Dutch one like John Van Pelt. But there are also some strange medleys of all such, with the addition of others that are completely novel. Dickens has both amazed and delighted us with the names he gave to some of his characters—are there not, for example, Mr. Pecksniff, Mr. Snodgrass, and Mrs. Peerybingle?—but the reality which confronts us in the list of American architects is hardly less whimsical: for what shall we say of such names as L. G. Quackenboss, Samuel Booth Snook, Louis G. Dittoe, W. B. Tubby, George W. Hellmuth, and Cornelius Leenhouts? And when we come to combinations of them the effect is still further heightened: the most glorious trio being perhaps—Kellogg, Rankin, and Crane; Gordon, Tracey, and Swartwout; and A. Page Brown and Julius Schweinfurth.

\* \* \* \*

Thinking of the foregoing, and, in conjunction with it, of the account of an African hunting expedition that has recently been circulated, the idea occurs to me, what strange results there might be if architects, instead of adopting the patronymics of civilisation, had followed primitive custom. In the African hunting description it is explained in regard to the bearers: “To each of them was issued a small brass tag, as it is impossible to distinguish the natives otherwise, because of the fact that they do not follow the names of the parents, but choose names for themselves, each man selecting a name that happens to suit his fancy, such as ‘Sweet Music’ or ‘Hot Potato.’” Imagine Cockerell with the title of “Sublime Anthemion”!

UBIQUE.



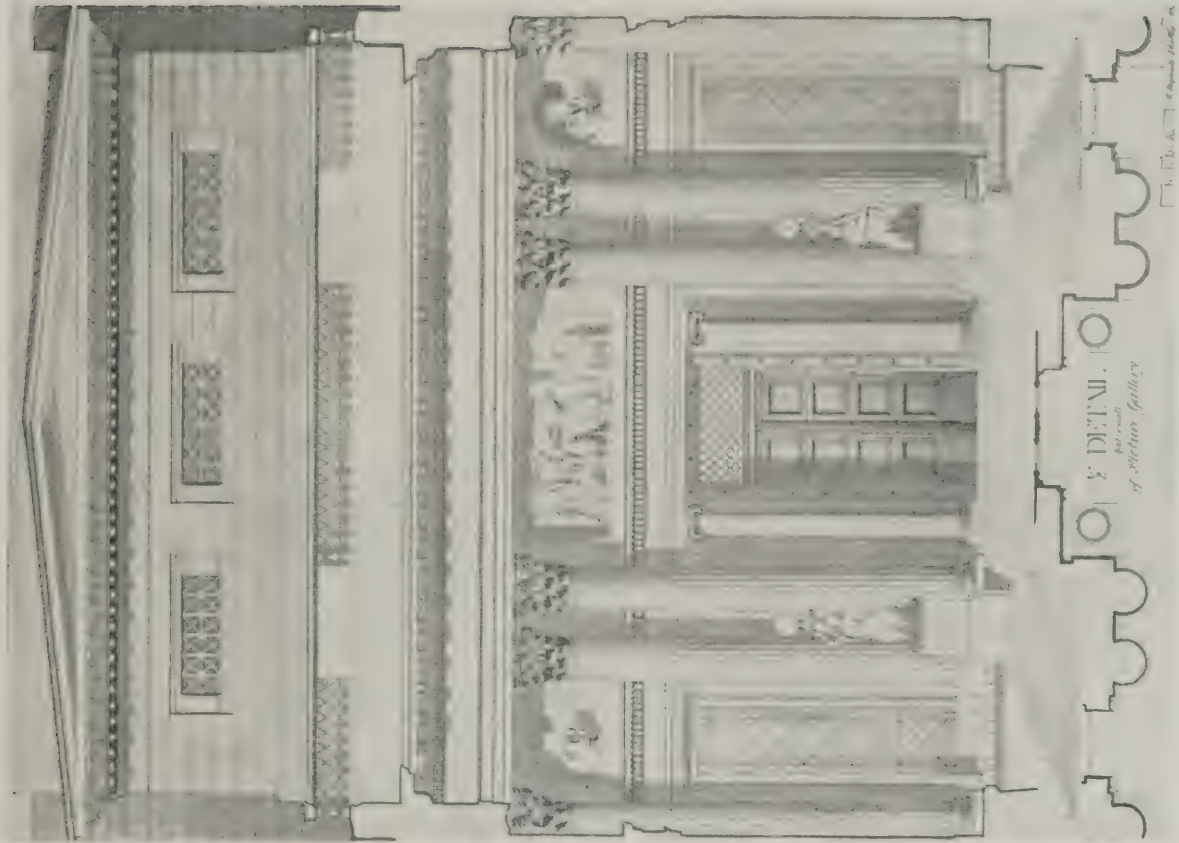


HOUSE AT KHARTOUM, EGYPT. RICHARDSON AND GILL, A.R.I.B.A., ARCHITECTS.  
(See page 73.)

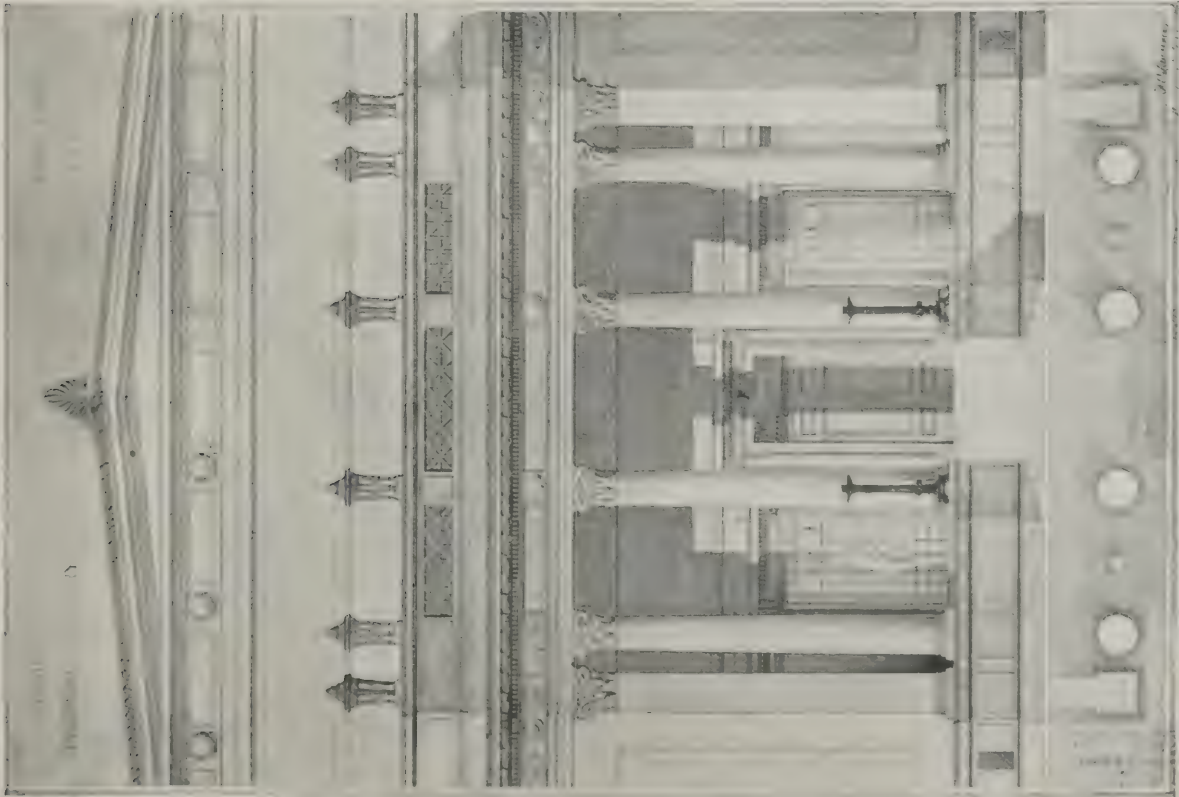




STUDENTS' PAGE.



By A. R. Shibley.



By F. O. Lawrence.

TESTIMONIES OF STUDY FOR R.I.B.A. FINAL EXAMINATION: APPROVED DESIGNS, SUBJECT V. (a).—AN ART GALLERY.





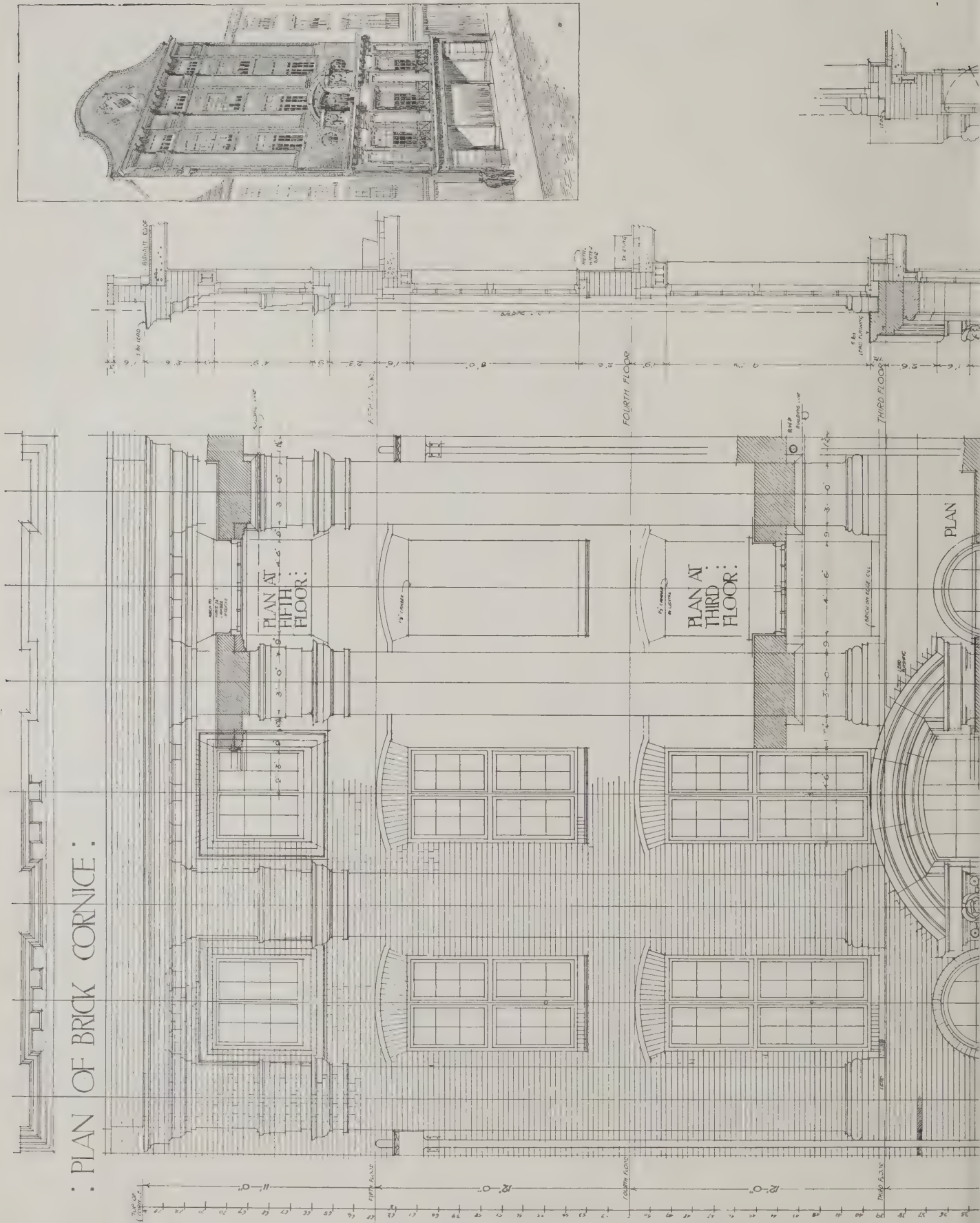


*Photo: Cyril Ellis*

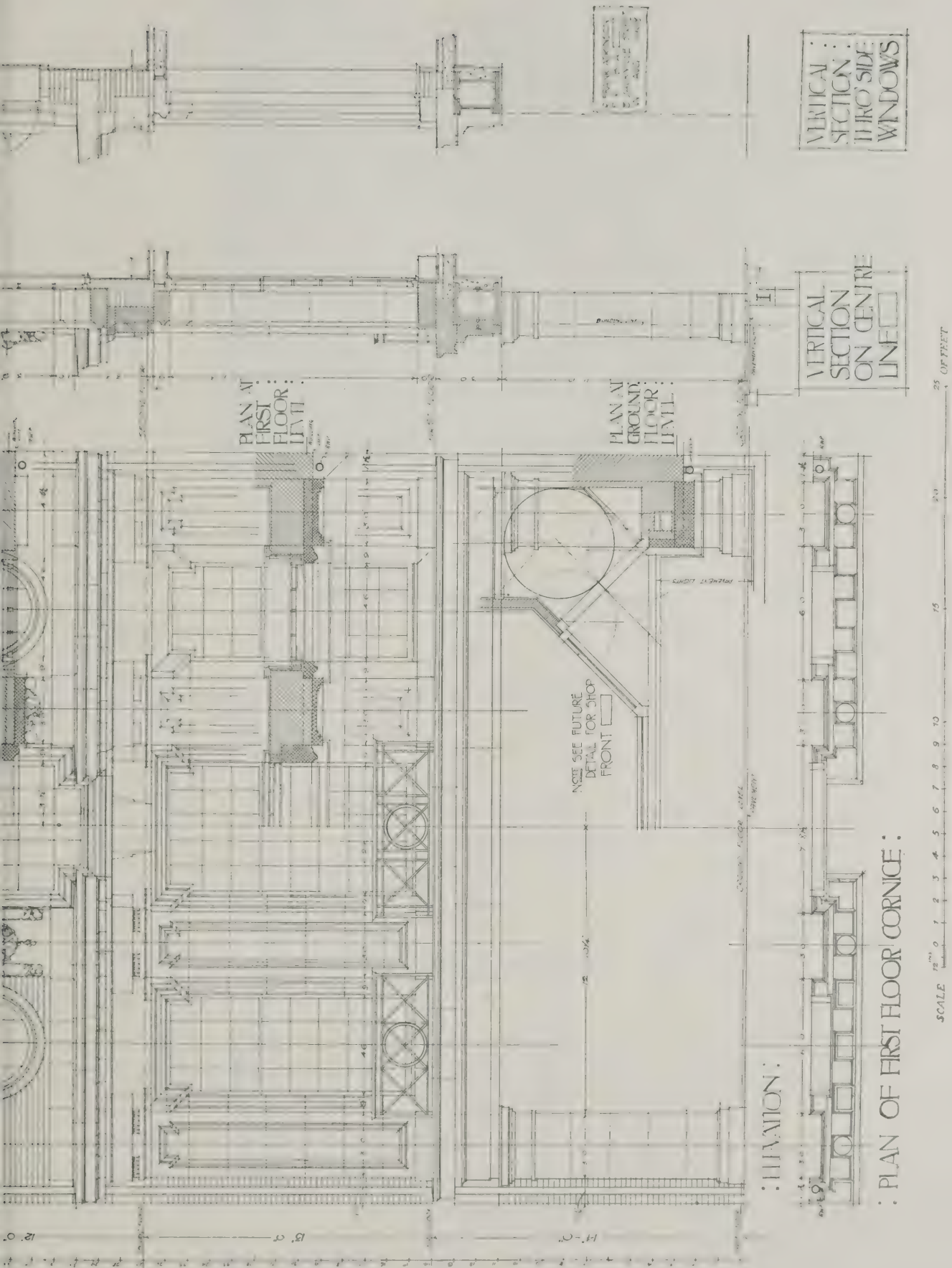
THE TOWER OF ST. MARY'S CHURCH, OATLANDS PARK, NEAR WEYBRIDGE, SURREY.

J. COMPTON HALL, F.R.I.B.A., ARCHITECT.

*(See page 73.)*

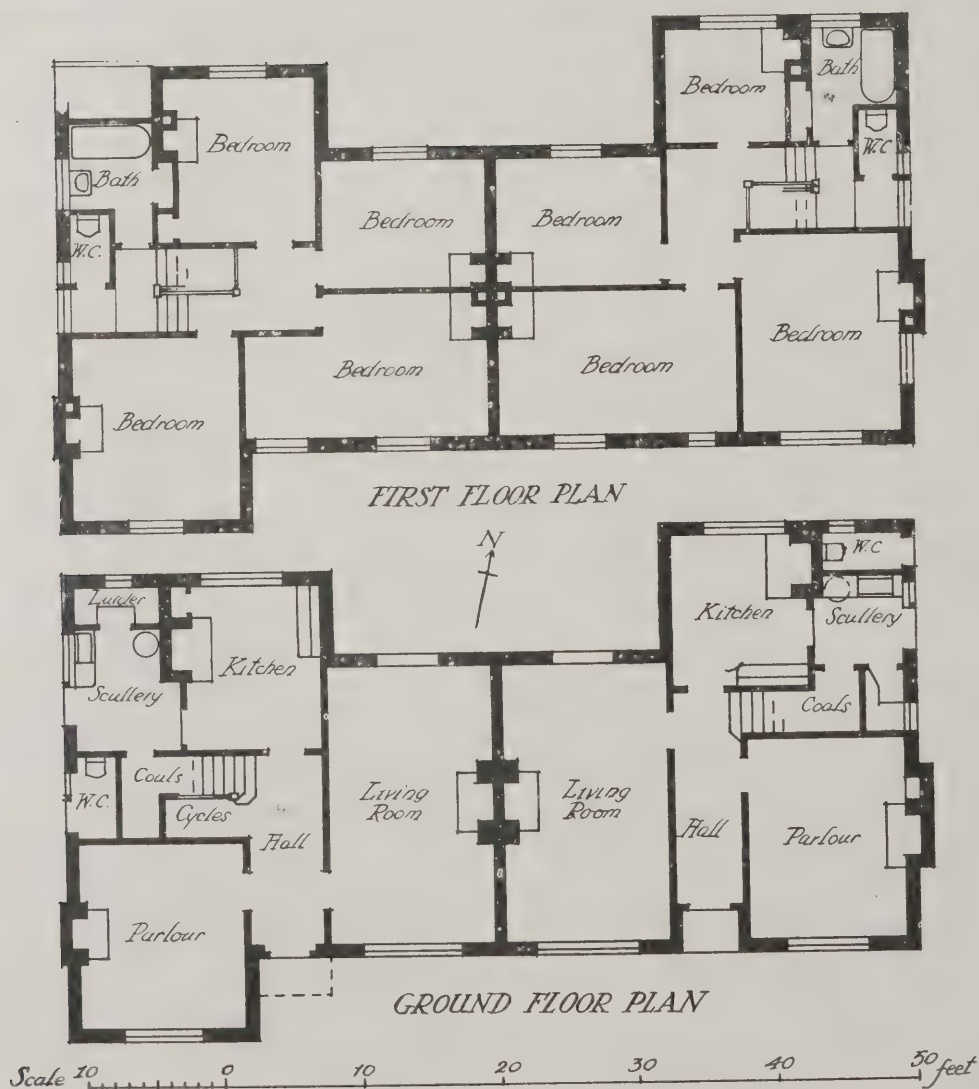






WORKING DRAWINGS BY WELL-KNOWN ARCHITECTS. XIII.—BUSINESS PREMISES, NO. 11, GREAT MARLBOROUGH STREET, LONDON, W.

R. FRANK ATKINSON, F.R.I.B.A., ARCHITECT.

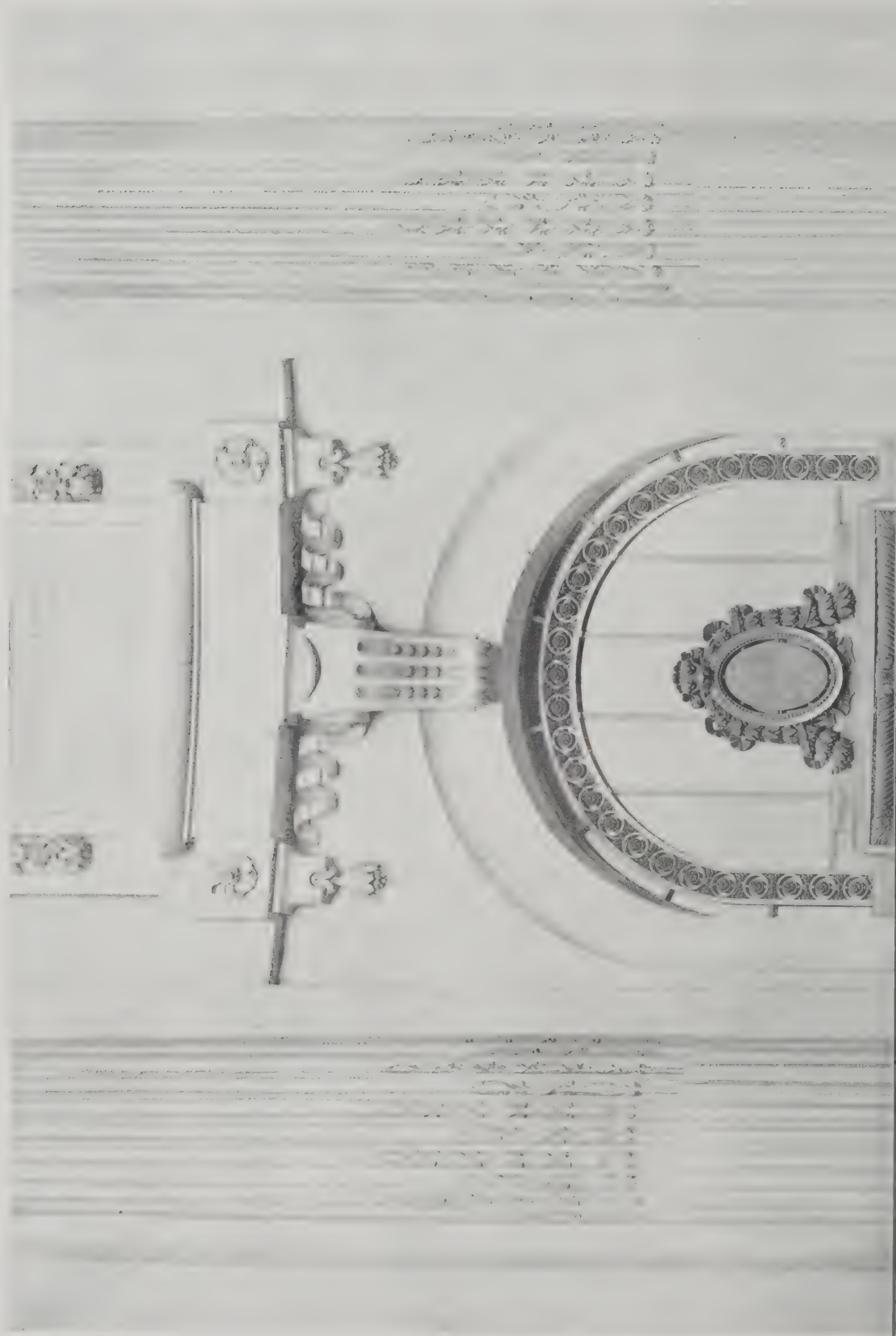


MODERN SMALL HOUSES. XII.—COTTAGES AT RUISLIP.

EDWIN GUNN, A.R.I.B.A., ARCHITECT.











BRONZE DOOR AND ENTRANCE AT CORNER OF GRAND PALAIS, PARIS. H. DÉGLANE, ARCHITECT.





## R.I.B.A. PROBLEMS IN DESIGN.

ON page 67 of this issue we give the last of the approved designs for Subject V. (a)—An Art Gallery—which we intend to publish, these being by Mr. F. O. Lawrence and Mr. A. R. Shibley, both of the Liverpool School of Architecture.

Below we give the full particulars for Subjects VII., VIII., and IX., together with information as to the manner in which the drawings are to be prepared.

### General Instructions.

1. The drawings, which should be on uniform sheets of paper of not less than Imperial size, must be sent to the Secretary of the Board of Architectural Education at the Royal Institute of British Architects, 9, Conduit Street, London, W., on or before the dates specified below.

2. Each set of drawings must be signed by the author, *and his name and address*, and the name of the school, if any, in which the drawings have been prepared, attached thereto.

3. All designs, whether done in a school or not, must be accompanied by a declaration from the student that the design is his own work and that the drawings have been wholly executed by him.

In the preparation of the design the student may profit by advice.

4. Drawings for subjects (a) are to have the shadows projected at an angle of 45 deg. in line, monochrome, or colour. Drawings in Subjects (b) are to be finished as working drawings. Lettering on all drawings to be in a clear, scholarly character.

### SUBJECT VII.

(a) A monumental staircase and vestibule to a large museum. Scale of drawings, 8 ft. to 1 in., with two  $\frac{1}{2}$ -in. scale detail sections.

(b) A village inn with not more than eight bedrooms. The site, which is not a corner one, has an 80-ft. frontage, with no lighting available on either side. Scale of drawings, 8 ft. to 1 in., with  $\frac{1}{2}$ -in. scale details.

### SUBJECT VIII.

(a) A covered carriage entrance to a large hotel built in stone. Drawings required:  $\frac{1}{8}$ -in. scale key elevation of the hotel façade and  $\frac{1}{2}$ -in. scale detail drawings of the entrance.

(b) Design for a gatehouse to a college. Scale of drawings, 8 ft. to 1 in., with  $\frac{1}{2}$ -in. scale details.

### SUBJECT IX.

(a) A monument in a public place containing one or more fountains commemorating the bringing of water to a town. Drawings to  $\frac{1}{2}$ -in. scale, with one general plan of the place to 1-32-in. scale.

(b) A design for a bank in a small country town on a corner site. Scale of drawings, 8 ft. to 1 in., with  $\frac{1}{2}$ -in. scale details.

### DATES FOR SUBMISSION OF DESIGNS.

	SUBJECT VII.	SUBJECT VIII.	SUBJECT IX.
United Kingdom ...	Feb. 28th	April 30th	June 30th
Johannesburg ...	April 30th	June 30th	Aug. 30th
Melbourne ...	May 31st	July 31st	Sept. 30th
Sydney ...	May 31st	July 31st	Sept. 30th
Toronto ...	March 31st	May 31st	July 31st

## WORKING DRAWINGS BY WELL-KNOWN ARCHITECTS.

A BUILDING in Great Marlborough Street, London, W., erected for Messrs. Waring and Gillow from designs by Mr. R. Frank Atkinson, F.R.I.B.A., is shown by the working drawing reproduced on pages 70 and 71 of this issue. The front is in the style of the Later Renaissance, reminiscent of the Queen Anne period, and is carried out in Portland stone to the second-floor level, with a central feature

rising to the third floor, the remainder being in brickwork, with  $\frac{1}{4}$  in. joints in white mortar. Four brick pilasters extend to the top of the façade, which is crowned by a brick frieze, cornice, and blocking-course (the gable shown on the small perspective has been omitted in execution).

## OUR PLATE.

WHILE it has not the same grace as the Petit Palais, the Grand Palais is an extremely interesting building, and it is enriched with some remarkably effective sculpture. The corner entrance which we illustrate on the Centre Plate in this issue is one of many parts of the building which exhibit much individuality. The columns on either side, it will be noticed, have a leaf treatment which has been often copied, while the enclosing frame to the doorway is a fine example of modern bronze work. The building is a permanent relic of the Exhibition of 1900 and is the work of M. Deglane.

## A CHURCH TOWER.

THE tower to St. Mary's Church, Oatlands Park, illustrated on page 69, is 20 ft. square at the base and 80 ft. in height. The walls are faced with Bargate stone, the dressings to the openings being of Bath stone. The tower is attached to the church on one side only and a wide pathway extends through it from east to west. Mr. Compton Hall, the architect, has prepared schemes for the further enlargement of the church and he is instructed to superintend the hanging of a peal of bells which have been cast by Messrs. Warner.

## A HOUSE AT KHARTOUM.

THE house at Khartoum illustrated on page 65 is now in course of erection for H. St. George Peacock, Esq., Judge of the Soudan. The character of the architecture is based upon the Oriental style of the old buildings in Cairo and Alexandria. The materials consist of burnt brick, mud brick, concrete floors, and Marseilles tiles for the roofs and verandahs. Messrs. Richardson and Gill, A.R.I.B.A., of London, are the architects.

## MODERN SMALL HOUSES.

SOME cottages at Kingsend, Ruislip, by Mr. Edwin Gunn, A.R.I.B.A., of London, E.C., are illustrated on page 72 as the twelfth example in our series of "Modern Small Houses." The general lines of the plan were determined by the site, which is intersected obliquely by a row of tall trees desired to be retained. The aspect of the front is due south, and it was felt that this would not be unpleasant for the principal rooms, as the shade of the trees would sufficiently protect them from the sun during summer, while in their bare winter state no obstruction would be offered to such gleams as the season affords. The buildings were accordingly set back far behind the adjoining frontage lines. Still influenced by the trees, a long level roof line was decided on, as a foil to their verticality, and a window area considerably in excess of the stipulated tenth was contrived. The living-rooms extend from front to back in order that an outlook on the gardens in the rear may also be obtained. The walls are 11 in. cavity, partly faced with Chesham bricks, and partly plastered with roughened cement rendering distempered cream, upon which background the shadows of the trees tell delightfully. The roofs are covered with Loughborough tiles.



## CORRESPONDENCE.

*The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents.*

*Correspondents are asked to be brief and to write on one side only of the paper.*

*The Area of a Circle.*

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—Your correspondents Mr. T. Hilton Wornum and Mr. H. F. Wilkinson have not yet convinced me that when you multiply square inches by inches you can get anything but cubic inches. This must be so, whether the multiplication be done by the duodecimal method or any other. Also "0 ft. 9 5-12 in." cannot be a ratio, because a ratio is a mere number like .7854. Leave out the "in." after 9 5-12 and the method is reasonable. I know perfectly well that correct results are obtained by the method stated, but they ignore the ordinary rules for the multiplication of square units by linear units.

R. E. MARSDEN.

Goldsmiths' College, New Cross, S.E.

[No further correspondence on this matter is desired.—EDS. A. AND B.J.]

*An Estimate of Norman Shaw.*

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—I have read your obituary notice and Professor Beresford Pite's article on the late Mr. Norman Shaw, but venture to suggest that there is still something to be said about this charming and remarkable personality. True, as Professor Pite observes, we cannot exactly place Norman Shaw—that must be left to another generation; but lest silence may be taken for indifference, I think we should make a rough estimate of the man and his work (I speak principally of his early work). He will, I think, be catalogued with the Gothic Revivalists, and, as regards domestic architecture, by far the greatest of them; and yet much of even his early work was so free and full of invention that it is really not Gothic at all. There was also an extraordinary rationality in all Shaw's work, and in judging his work let us remember the time and circumstances under which it was done—1867 to 1880. Refer to the building journals through this period and see what sore of stuff was then being turned out as domestic architecture; how impractical most of it was, how strange the plans, while of the details it is well not to speak at all.

Shaw was a tremendous worker (I do not know whether it was the custom before his time to work from full-size details; I should rather doubt if it were in domestic work). He simply revelled in detail; everything had to be done full-size, and the construction was always the first essential—126 major drawings were done for the Bank House, Farnham, besides innumerable lesser ones, and all these are covered with notes, while models and sketches of carving and plaster had to be submitted.

One must remember that Shaw was not surrounded by a band of able craftsmen as we are to-day. There was no Bankart to do the plaster, nor Martyn to do the carving. The craftsmen of those days were expected to be as much like machines as possible. Tuck pointing was the acme of perfection to the bricklayer, stop chamfers the ideal of the carpenter. And yet they were fairly perfect. Look at the Bank House from the pavement, rising tier after tier like some old ship, and it will be recognised that, despite its plate-glass in the casements, one would have to go a long way before finding a more impressive street front, even among old work.

Shaw was a revivalist working under heartrending conditions, for most of his employers were only half-sympathetic. All the time he was trying to do twice as much work as one man can do, and was doing it

cheerfully, getting into difficulties apparently for the pleasure of getting out of them.

He raised domestic architecture out of the slough of despond in which he found it. A stuffy drudgery, he left it a tolerably respected art. He lived through two generations, and having got as far as he could go in one revival, he abandoned it, and for years easily led another. We must not judge him by our contemporaries, but by his own. We build on him, but he had nothing to build on except what he could dig out of an almost forgotten past. We profit by his mistakes and by his triumphs, as another generation will profit by ours, but do not let us make the mistake of supposing that we should be where we are if Norman Shaw had not done the spade-work and set his ladders against the walls of the Philistines.

Farnham.

HAROLD FALKNER.

*Reinforced Concrete Slabs.*

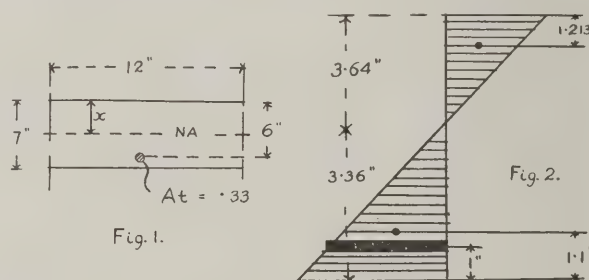
To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—The methods of calculating the strengths of slabs given by your correspondent Mr. Rings are very ingenious, but, unfortunately, they do not conform with the laws of mechanics.

First of all he assumes the stresses at 600 lb. and 17,000 lbs. and thereby fixes the position of the neutral axis at '33 of the depth from the top. This is quite correct, provided that the modular ratio is 15 (which is the value usually adopted), that the concrete below the neutral axis, being in tension, is neglected altogether, and that the amount of reinforcement bears a certain ratio to the total area of cross-section.

When, however, any one of these conditions is not fulfilled, the position of the neutral axis will be altered; thus, when the concrete below the neutral axis is taken into account, Mr. Rings is wrong in assuming that the neutral axis and lever arm remain as before.

In the example given by Mr. Rings (see Fig. 1) the



correct position of the neutral axis when the tensile strength of the concrete is taken into account will be 3.64 in.

$$x = \frac{(12 \times 7 \times \frac{3}{2}) + \{(15 - 1) \times .33 \times 6\}}{(12 \times 7) + \{(15 - 1) \times .33\}} = 3.64''$$

Referring to Fig. 2, the centre of compression is  $\frac{x}{3} = 1.213$  in. from the top, and the centre of

$$\text{tension is } \frac{12 \times \frac{3.36}{2} \times \frac{3.36}{3} + 14 \times .33 \times 1''}{\frac{12 \times 3.36}{2} + 14 \times .33} = 1.1''$$

from the bottom.

The lever arm, then, is  $7'' - 1.213 - 1.1 = 4.678''$  against 5.33 assumed by Mr. Rings.

Further, Mr. Rings assumes that, at the same distance from the neutral axis the steel is stressed at 17,000 lb., while the surrounding concrete is stressed at 100 lb.!

This is obviously impossible unless the modular ratio has suddenly jumped from 15 to 170.



If the tension is limited to 100 lb. in the concrete, then the compression will be

$$\frac{3.64}{3.36} \times 100 = 109 \text{ lb.}$$

and the moment of resistance will be

$$\frac{109 \times 12 \times 3.64}{2} \times 4.678 = 11113 \text{ in.} = \text{lb.}$$

instead of 42,693 in. = lbs.

In order to resist the moment given by Mr. Rings (42693), the stresses would be—

$$C = \frac{42693}{11113} \times 109 = 417 \text{ lb.}$$

$$\text{tension in concrete} = 417 \times \frac{3.36}{3.64} = 385 \text{ lb.}$$

$$\text{tension in steel} = 385 \times 15 \times \frac{2.36}{3.36} = 4,200 \text{ lb.}$$

Thus it would seem that, unless the modulus of elasticity of concrete is very different from what is usually assumed, we must look for other reasons for the excess of actual over calculated strength which is so often found.

In view of the fact that it is chiefly found in slabs forming a part of a floor, it seems probable that this excess of strength is due to arching action, as in most cases the supports are of such a nature that they can withstand a thrust.

Thus, the example given by Mr. Rings of a 6-in. slab between rolled steel joists, stressed at 500 lbs., and keeping the resultant stress on the middle third to avoid tension, would resist a bending moment of 36,000 in. = lbs., against the 2,430 in. = lbs. required of it. In the same way the 7-in. slab stressed at 600 lbs. (and neglecting the reinforcement) would resist

$$\frac{600 \times 7}{2} \times 12 \text{ in.} \times 21 = 68600 \text{ in.} = \text{lb.}$$

very much more than if calculated as a beam.

Probably in most cases what actually takes place is something between the two cases.

London, S.W.

J. B. GRIFFITH.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—Referring to the discussion on the above, particularly to the part where the theory is suggested that the lever arm increases with age in a reinforced beam, your correspondent Mr. Rings evidently agrees with Mr. Wells, and explains his reasons by taking the tension value of concrete into consideration. He takes a 6-in. coke-breeze floor between rolled steel joists 3 ft. apart, and because it resists 180 lb. per square foot he contends that tension exists in the concrete. Beyond a certain point I entirely disagree, and for the following reasons: Suppose, for example, we take the floor and cut away all the concrete, as shown in Fig. 1. According to Mr. Rings, the floor must collapse because we have taken away the "concrete in tension," i.e., half the depth, and consequently, the factor of safety becomes zero. This is obviously a fallacy; the sketch readily suggests the action which, according to the writer, takes place, and a few figures will show why these floors can take the load they do. Of course, this arching action is infinitesimal when the ratio of span to depth of floor is great. Fig. 2 indicates how the action actually takes place, first by tension cracks due to slight load, and then the arching action coming in.

As regards reinforced concrete, we perhaps all agree that of two similar beams the older will stand the greater load, but Mr. Rings goes on to say—"it is perfectly clear that this" can only be "due to the increased tensile resistance of the concrete." This statement presupposes, among other things, that there are no hair-cracks due to strain, that steel and concrete work in perfect unison, and that shear and adhesion are

abundantly provided for, and taking his measure of resistance as the breaking load (otherwise how does he measure same?) it presupposes that just before failure occurs the concrete is acting in tension, and that, too, when the steel has passed the elastic limit.

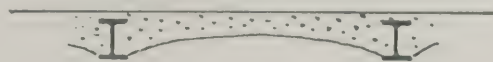


Fig. 1

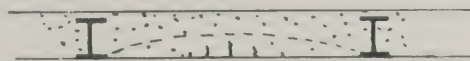


Fig. 2

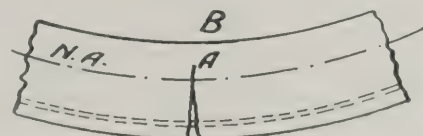


Fig. 3.

I beg to differ with this tension theory, and submit that tension or hair-cracks occur before the elastic limit is reached, thus destroying the tensile value of the concrete. Between the "elastic" and "yield" points the beam has opened as shown exaggerated in Fig. 3. The point A is now above the original neutral axis, and consequently the part A B is very much overstressed. Concrete only one month old would be unable to resist this pressure—hence the beam fails by crushing; but a twelve-months-old concrete, being perhaps three to four times as strong, would resist it, and this beam could be loaded beyond the "yield" point of the steel.

I agree with "P" and Mr. Waldram that it is a mistake to say this results in a bigger lever arm, for as soon as the point A is above the original neutral axis we have stepped beyond the bounds of theory in relation to bending.

Ilford.

J. WESTON.

Architects and Shopfitters.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—May we, as shopfitters, call your attention to the dearth of architects who have a practical knowledge of the needs of the present-day requirements of the great trading houses?

Our advice to employ an architect meets with this retort: our clients say that architects do not understand the technical requirements of retail businesses, and are not in touch with the latest type of fittings; that they do not know the size of fixtures for the various classes of goods—whether certain goods are kept in open fixtures, drawers, or show-cases; in fact, are unacquainted with the hundred and one requirements of modern trading houses.

We have offered through our clients to assist their architects with these details, but our offer is looked upon by the latter, in the majority of instances, as an impertinence; why, we fail to understand, for if an architect has not made a special study of this branch he cannot know the details.

We can assure architects that shopfitters in general would feel greatly indebted to men who would fill up the breach, and would gladly render them all assistance with technical details.

We may add that there is, roughly, a million pounds' worth of shop, office, and bank fittings made in London every year.

E. POLLARD AND CO., LTD.

London, E.C.

## ENQUIRIES ANSWERED.

### Hot-water Cylinder Tank System.

EFFICIENCY writes: "The accompanying diagram represents a hot-water installation, having a secondary flow and return and a hot-water tank. The branch supplies to bath, etc., are taken off the flow pipe, and the question is raised as to whether the hot water stored in the tank is capable of being drawn off at the bath."

"Is it correct that the hot water is only drawn from the cylinder, and when this is exhausted, and its place taken by the cold water admitted to the level of the branch to bath tap, there is still a quantity of hot water in the secondary tank which cannot be drawn off at the bath?"

"If the branch to bath were taken off the secondary return pipe, would this not ensure all the hot-water in cylinder and tank being drawn off?"

—In any hot-water supply system the opening of a tap produces as its first effect a reduction of pressure at the point A, where the single draw-off pipe joins the circulating system. Water will therefore flow towards that point from all directions where the "circulating pressure" is greater than at the point in question. If the supply pipe S is fairly large, the pressure at point B will not be very much lower when the water is running than when it is at rest, assuming a constant water level in the supply tank. B may for the purposes of the present explanation be taken to be a point where the pressure is constant. When the pressure at A is reduced by opening the tap, water will rush from B to A by any and every path that is open to it. The paths open to it in the present instance are B, H, G, A and B, H, K, F, E, D, S, A, and also the much more difficult path B, L, M, N, K, F, E, D, C, A.

Water will flow along all these paths from B to A. It depends on the relative resistances of these paths whether more water will flow through one path than through another. The water drawn off will in any case be a mixture. The entering cold water will take the place of the hot, and gradually increase until the whole system becomes filled with cold.

As it is arranged in the sketch, if the pipe K, F, E, D is very large and G, A small, the whole of the hot water in the

upper tank would be drawn off before much cold got to the outlet, leaving the cylinder full of hot; but if pipe K, F, E, D were small and G, A large, only the cylinder full of hot water would be drawn off at A, and would be followed by dead cold water; while the large tank full of hot water would be left practically untouched.

The principle involved in such systems as the one in question is that the cold water will follow its easiest path, and that the temperature of the water actually drawn off is a mixture of water coming from all directions. If the system is so arranged that it is easier for the cold water to get to the outlet than the hot, then water will run cold. But if it is easier for the hot water to get to the outlet than cold, then hot water will be drawn. All such systems should be arranged so that the whole of the hot water *must* be drawn off before any cold can get at the pipe. In this system the correct design would be such that pipe G, A would transfer the cylinder full of hot water to A *in the same time* as pipe K, F, E, D would transfer enough cold water into the upper tank to displace the whole of its hot contents to A. If the design fulfilled this condition, then the system as shown would continue to pass pure hot water until every drop of hot water in both tanks were displaced, and would then run cold. The satisfactory working of this system, therefore, depends solely on the respective pipes having the correct diameter. The proper respective sizes of the pipes depends on the relative capacities of the two tanks. A. H. BARKER.

### Converting Warehouse into Residence.

ETTO writes: "Certain premises, erected about eleven years ago, comprise a ground floor of lock-up shops and an upper floor. This latter has never been successfully occupied. The whole property recently changed hands, and the present owner thinks it advisable to convert the upper floor into a dwelling flat. For this purpose it is proposed to divide it into rooms with a door in the scullery wall leading on to an iron gangway and staircase, which would land into the yard below. I am doubtful whether the building committee will agree to this course, as the plans in the first instance were passed on the understanding that the premises were classed as a warehouse. The local by-laws do not relate to alterations, but to new buildings."

"Can the upper part be converted into a dwelling flat and the ground floor remain a warehouse? Is it imperative that the yard space should be on the same level as the dwelling? The minimum yard space to comply with by-laws is 150 super. ft. Can it be objected that the yard is common to all tenants?"

—The building committee is only able to act in accordance with the powers given by the by-laws. As to alterations, the clause usually adopted states: "Where any building has been erected in accordance with the requirements of any by-laws made under the Public Health Acts, and in force at the time of such erection, no person shall alter such building in such a way that the same as altered would, if at first so constructed, have contravened any such by-laws."

As the regulations governing buildings of the warehouse class provide for structural design of more substantial character than domestic buildings, there should be no difficulty under this head. The cubic

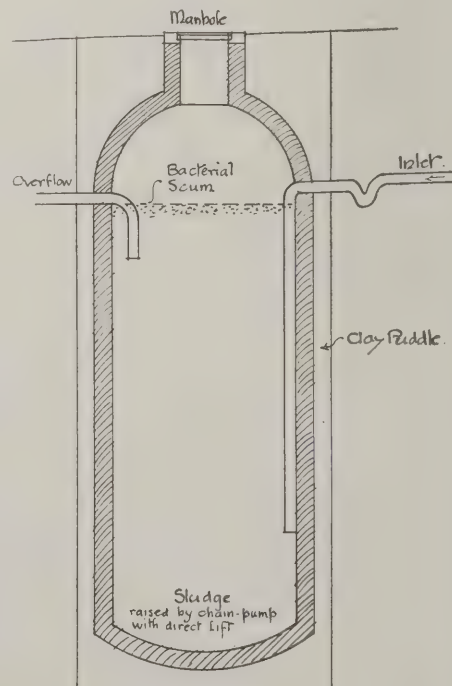
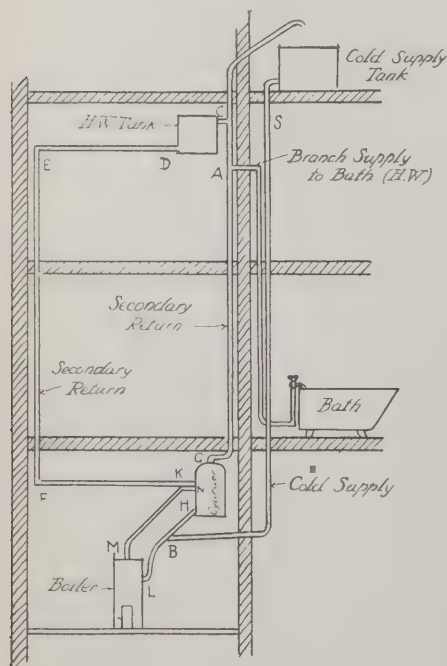
contents are not apparently sufficient to require fireproof floors or staircases as a result of separate occupation, and there appears to be nothing to prevent the division as suggested under this head. The provision for open space in rear relates entirely to the circulation of air about the buildings; and if the widths and areas of space are (as they appear to be) sufficient, the actual level of the yard paving is a matter of no concern. G.

### Cesspool Construction.

ALPHA writes: "I am preparing a plan for nine cottages, and as there is no system of drainage near at hand I propose to employ a cesspool. Kindly give suitable dimensions, and say, also, what method of construction should be followed."

—Further particulars would have been useful—such as the nature of soil, possibility of arranging overflow, how often cesspool will be cleared, etc., but, probably, querist can suit his own circumstances from the following particulars:

The amount of sewage and waste water per person per day may be taken as between 25 and 40 gallons. If the waste water can be otherwise disposed of, this quantity may be reduced to an average of 6 to 9 gallons. Assuming the quantity at 25 gallons, however, and the occupants of each cottage at four persons, there will be 900 gallons of sewage per day to provide for from the nine cottages. It is desirable that all cesspools should provide sufficient capacity to contain at least three months' sewage without the need for clearing—other than the disposal of liquids (after the settlement of the solids in suspension), which may be drawn off continuously by an overflow into some system of land drains or stream or water-course, or pumped up at frequent intervals and distributed over the land. Assuming that the latter course is followed, and one week's sewage allowed for, this will necessitate storage for 6,300 gallons at least. This equals  $\frac{6300}{27} = 233\frac{1}{3}$  cubic ft., roughly, 1,000 cubic ft. A cesspool 8 ft. in diameter will therefore require to be 20 ft. deep, as a minimum to give the capacity desired. It will probably be better to provide three cesspools of lesser capacity. If an overflow can be





arranged the cesspool becomes an unscientific form of septic tank, and may go for much longer periods without cleansing; while, if on chalk or sandy soil, and not in the neighbourhood of wells, it may be taken to a considerable depth in dry steining, and will run without attention for very long periods—some cesspools on chalk are known never to have been cleaned and yet give no trouble.

The ordinary watertight cesspool should be circular, with arched bottom and domed top, constructed of hard brickwork, bedded and grouted in cement, rendered internally in cement, trowelled smooth, and surrounded externally at the sides and beneath with a backing at least 9 in. thick of well-puddled clay. The house drain should be disconnected by an intercepting trap and separately ventilated. A man-hole must be provided for clearing and slight ventilation to prevent the cesspool from becoming airbound. The overflow should be turned down to draw off below the layer of scum. See illustration for general arrangement. G.

#### Roof for Motor Showroom.

STUDENT writes: "I should be glad of your advice with respect to the drawing out of the stress diagram for a roof for a motor showroom."

—The roof truss proposed is of suitable arrangement if it is desired to have the underside shaped as shown, but it is usual to carry down the ends as shown by the dotted lines. Fig. 1 shows the frame diagram allowing 21 lb. per foot super. for slating, trusses, and purlins, 11 lb. per foot super. for ceiling, and 28 lb. per foot super. for wind pressure normal to one side. Fig. 2 shows the corresponding stress diagram, which is set off in the usual way without any difficulty arising. The reactions are obtained by taking half the total vertical load on each side—86.75 cwt.—and the wind pressure as would be

given by the reactions if it were acting upon the virtual beam A B, giving in this case 26.67 cwt. and 53.33 cwt. respectively. The stresses can be scaled off Fig. 2 and, in calculating the scantlings, the bending moment due to the purlins must not be forgotten. The part of greatest stress will be the principal rafters at part 3-21 and 8-30. All the joints will require calculating according to the stress passing through them. Before deciding upon a close ceiling the question of an open roof should be carefully considered.

HENRY ADAMS.

#### Size of Pipes for Private Fire Main.

G. M. H. writes: "I am putting in a fire hydrant, and there will be a 24,000-gallon tank 2,000 ft. from the house. The fall is 90 ft. Would 4-in. pipes be sufficient in order to play water on to the top of the house at a height of 60 ft., or will the loss due to friction be too great?"

—It is usual to provide a minimum water supply of 200 gallons per minute for thirty minutes for fire-fighting purposes in connection with any detached house for which a special installation is required. To supply this quantity at a distance of 2,000 ft. through a 4-in. pipe would require about 110-ft. head, while there is only an available head of 90—60 = 30 ft. It will therefore be necessary to lay 6-in. pipes. The diameter of a fire hose is 2½ in., reduced at the "branch" to 1½ in. and at the nozzle to ¾ in. Assume that the full quantity of 200 gallons per minute through 6-in. pipes is divided over two nozzles, giving 100 gallons each, then this amount would be delivered approximately at a height of 63 ft. The bends should be as few as possible, there should be no intermediate rise in the pipes to cause an air lock, and the outlet from the tank should be by a bell-mouth pipe.

HENRY ADAMS.

## COMPETITIONS.

### Devonport Municipal Buildings.

On January 7th the Town Clerk of Devonport informed the members of the Borough Council, by direction of the chairman of the Municipal Buildings Special Committee, that it had not been possible to have the draft conditions and instructions for competing architects ready for the meeting of council on Thursday last. The report will therefore be deferred until the February council meeting.

### The Australian Capital.

The Board to which the Government of the Australian Commonwealth submitted the various prize designs of June 21st, 1912, for the new Federal capital in the Canberra area has decided against using any one of them *in toto*. A report has been issued by the Board, together with the final plan as decided upon by that body, which incorporates features from the "premiated and purchased designs, wherever in the opinion of the Board such a procedure is warranted." The dominating feature of the capital will be the Houses of Parliament, and the plan of the area immediately surrounding this point "follows broadly that expressed in the first premiata design"—that of Mr. Walter Burley Griffin, of Chicago. The second and third premiata designs were respectively by Eliel Saarinen, of Helsingfors, Finland, and Alfred Agache, of Paris. Great attention has been paid in the new plan to the approaches both by road and rail, and sunlight will be secured to the blocks of buildings in the city, as they have been planned at suitable angles to the meridian for that purpose. The plan is calculated to provide "for the present and for the future, and should result in the creation of a city which will be practical," while the winning American design apparently contemplated a greater city than the Federal capital is likely to become for a very long time. It will be remembered that the organised architects of this country and Australia refrained from taking part in the competition, after vainly urging the Australian Government "to put the competition on a fair and proper basis." Mr. Ian MacAlister's explanation of the position was published in the JOURNAL of May 8th, 1912, p. 484. The three premiata schemes appeared in our issue of July 10th, 1912.

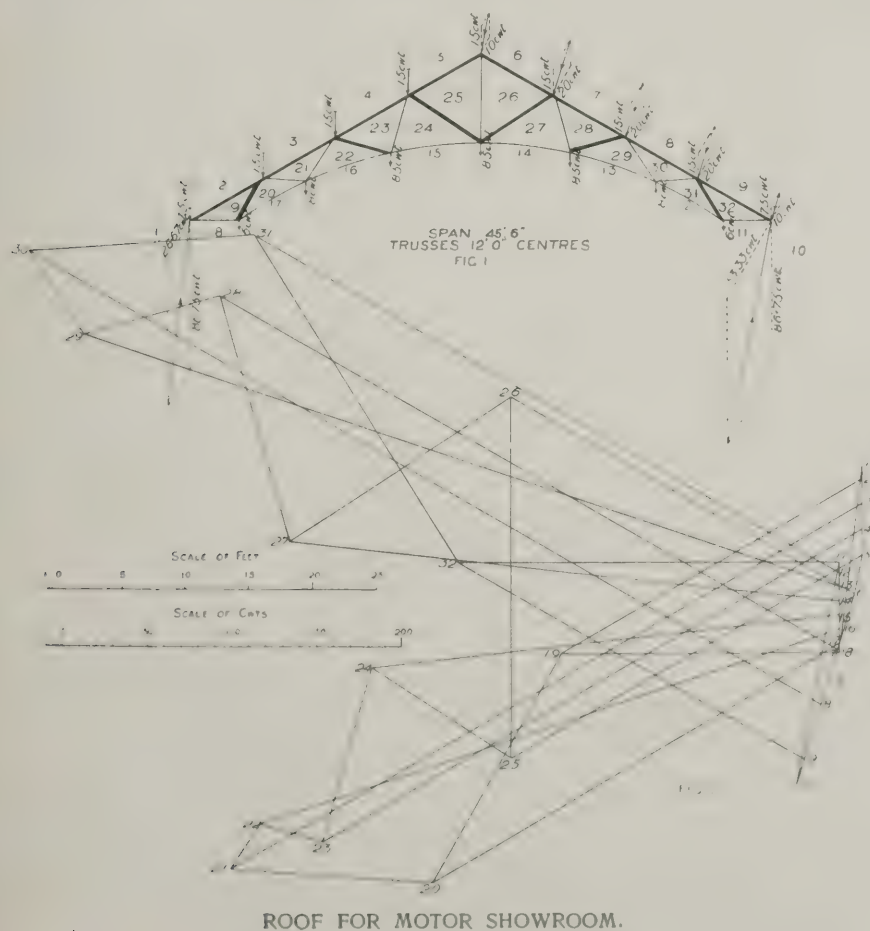
### LIST OF COMPETITIONS OPEN.

JANUARY 31.—MUNICIPAL BUILDINGS, JAMAICA.—For an open competition, in which a premium of £100 is offered for the design of municipal buildings to cost £9,000, particulars, price 2s., may be obtained from Messrs. Young, Ltd., 60, Fenchurch Street, E.C.

JANUARY 31.—HOUSING SCHEME, HEMEL HEMPSTEAD.—Premium, £20. Particulars (£1 1s.), Town Clerk, Hemel Hempstead.

FEBRUARY 3.—COUNCIL SCHOOL, HARROGATE.—The Borough of Harrogate Education Committee invite designs for an elementary school for 675 children. Particulars, C. E. Rivers, A.M.I.C.E., Borough Engineer, Harrogate.

FEBRUARY 8.—MUNICIPAL BUILDINGS, DUBLIN.—Restricted to practitioners in Ireland. Cost, £55,000. Author of selected design to supervise work. Second premium, £150; third, £100. Assessor, Mr. Albert H. Murray, F.R.I.B.A. [The





time has been extended from that formerly announced.]

FEBRUARY 22.—TRAINING COLLEGE, GLASGOW.—Limited to six selected architects.

FEBRUARY 26.—DECORATIVE FIGURE COMPOSITIONS.—The Academy of Fine Arts, Bristol, invite competitive sketch designs for painted decorative figure compositions to fill four segmental lunettes under the dome. The selected artist to receive £500 for the work. Assessors, Messrs. Beresford Pite, W. R. Lethaby, and Gerald Moira. Sections to be seen at the office of the architect, Mr. S. S. Reay, F.R.I.B.A., 47, Milsom Street, Bath. Designs to be sent to Mr. Beresford Pite, F.R.I.B.A., Royal College of Art, South Kensington, S.W.

MARCH 1.—MUNICIPAL BUILDINGS, RANGOON.—The Committee of the Municipality of Rangoon, Burma, invite architects to a competition for the designing and supervising of new municipal buildings. Premiums, £300, £200, and £100. Supervision may be delegated to a local firm of architects. Particulars £1, returnable from the London agents, Messrs. Ogilvy, Gillanders, and Co., Sun Court, 67, Cornhill, E.C.

MARCH 1.—CITY HALL, WINNIPEG.—Limited to British Architects in Canada. Assessor, Mr. Leonard Stokes, F.R.I.B.A.

MARCH 1.—ROYAL PALACE AND LAW COURTS, SOFIA.—Particulars of this competition are obtainable from the Commercial Intelligence Department, Board of Trade, Basinghall Street, E.C.

NO DATE.—NEW CHURCH, WORTHING.—Designs were invited for a new church to be built in South Lancing, at a cost of £4,000 to £5,000. (*We are asked to state that this competition is now closed.*)

NO DATE.—KURSAAL, FOLKESTONE.—Cost not to exceed £29,000. Premiums, 100, 50, and 25 guineas; premiums of accepted design to merge in fees. Apply to Town Clerk, Folkestone.

## FIRE PREVENTION NOTES.

### December Fires.

December is always prolific of fires, and last month the estimated losses from this cause in Great Britain reached the formidable total of £381,300, as compared with £215,200 in November last, and £185,500 in December, 1911. The most expensive fires naturally occurred in mills and factories, or in buildings of the warehouse class, the heaviest loss of the month being achieved at a Glasgow warehouse, where the damage was estimated at £60,000. Next in order of extent of damage comes a hosiery factory at Nottingham, with destruction valued at £40,000; while three fires, estimated each at £20,000, occurred respectively at a malting establishment at Beccles, at granite-crushing mills at Penmaenmawr, and from the destruction of shops at Hamilton, N.B. These are run pretty close by the £19,000 loss at a cotton-cloth factory at Nelson, Lancs. The next considerable fire-loss (£15,000) was at some jute-warehouses in Dundee; and a fire at a Liverpool cotton warehouse is estimated to have cost £12,000; the same amount being attributed to electricity works at Salford. Four £10,000 fires occurred respectively at a Preston cotton mill, at a Kirkliston distillery, at a furrier's in Fore Street, and at a Batley wool-len mill. A timber yard blaze in North Kensington at £8,000, a £6,000 fire at a Nottingham grocery, and fires at a dra-

perry store in Knightsbridge, at a builder's sawmill in Finsbury, at a Farnworth cotton mill, at a felt works at Bury, Lancs., and at a cork warehouse in Hull, each costing £5,000, conclude what may be termed the colossal items; but the enormous grand total was swelled to its abnormal dimensions by about forty fires ranging from £1,000 to £4,000. The list includes half a dozen private houses, which suffered damage in each case to the extent of £1,000 or more.

### Drapery Stores.

It is remarkable that only one drapery fire—that at Knightsbridge—is recorded, and only one fire at a cinematograph theatre; although drapery establishments were extraordinarily busy and cinematograph theatres were at the zenith of popularity. It is difficult to believe that in either case this immunity is attributable to chance alone. Taught by disastrous experience, drapers are becoming wiser in the adoption of precautions and keener in their vigilance; while the cinemas are subject to regulations that seem to be achieving their object. Neither in the one case nor in the other, however, have we reached anything like finality in fire protection. That is to say, quite apart from the question of further developments of available means, it is notorious that, in the vast majority of drapery stores throughout the kingdom, more especially those that have not been very recently built, very little has been done constructionally to prevent fire; nor is the equipment usually such as to inspire confidence that fire-resistance has been given anything more than a passing thought. Cheapness, miscalled economy, is the governing idea throughout, and, consequently, the drapery store is commonly almost as flimsy and combustible as its contents.

### The More Modern Methods of Fire-prevention.

The merely shoddy building need not be here discussed. It is beneath contempt; but it counts for much in the sum total of losses from fire, and therefore its construction should be absolutely prohibited. The building for which a properly qualified architect is engaged, and for which a fair price is paid to the contractor, is in another category. Here again, however, false economy is too often allowed undue weight. The proprietor has, in most instances, an exaggerated notion of the immediate cost of fire-preventing methods, and in many cases the architect is either unable or unwilling to correct his impressions; while the contractor may have a strong predilection for the methods and materials to which he is inveterately accustomed, and is therefore but little likely to encourage reform. There is in all these depressing circumstances all the greater need for constant and strenuous advocacy of reform. The writer of these notes is convinced that the true remedy for all this laxity is compulsion; short of that, however, the vendors of fire-resisting materials and devices might do very much more than they have hitherto done to make their specialities widely known, to remove ignorance of them or prejudice against them, and, in particular, to show, as certainly they could, that the extra cost, if any, is infinitesimally slight in comparison with the enormous advantages, and the positive duty, of safeguarding to the utmost the lives and property of one's self and neighbours. When, some time back, the Parliamentary Committee on School Construction mentioned with commendation

certain special materials, it became apparent that a good many architects and builders had until then never heard of the materials, and did not know where to obtain them. Such ignorance would be unpardonable, supposing that the articles had received due publicity through the usual channels; but the British vendors of specialties have not all taken to heart the American motto, "If you're at the back of a sound proposition, push the goods."

## FIRE PRECAUTIONS AT THE ROYAL ALBERT HALL.

Mr. Hilton Carter, manager and secretary of the Royal Albert Hall, replying to some criticisms on that building which were made in the course of a discussion before the London County Council, in which it was stated that the Council have apparently no power to inspect the building with a view to enforcing the usual regulations against fire or panic, recalls that, at the inception of the undertaking, the greatest care and consideration were bestowed upon the safety of the building and of the audiences, and that at no time during its subsequent administration has that care and consideration been relaxed.

Not only are the premises abundantly supplied with water and with fire appliances of various descriptions, which are rigorously inspected every week, but the permanent staff of the hall is itself an extra fire brigade, which is regularly drilled both inside and outside the building by the fire superintendent, who was himself for twenty-eight years in the service of and a superintendent in the London Fire Brigade. This brigade can at all times be called together and be ready for operation within one minute after receiving the call, as is proved from time to time at surprise drills.

The statement before the Council that many of the exits are shut up, that there are no attendants to show people the way out, and that there are no indications of where the exits are, Mr. Carter declares to be entirely erroneous, for the fact is that no exits are shut up, that the whole of the staff, numbering upwards of 1,000, are on duty at all times when the hall is open to the public, that all of them have definite duties and fixed positions, and that the hall is plentifully supplied with the usual "indications."

The suggestion that some exits are shut up probably arises from the fact that during the performances some doors are closed and marked "No exit," but the only doors which are so closed are those which do not lead into the open or provide effective exits. It is obviously for the protection of the public that this is done, and it is in fact in accordance with the regulations of the London County Council itself.

As to the sufficiency of the existing exits, the only necessary comment is that the hall when filled to its utmost capacity can be cleared within five minutes.

Mr. Horace Smith, the Westminster magistrate, having decided that the London County Council have no jurisdiction over the building, it is understood that the matter is to be brought before the High Courts. If the appeal is unsuccessful, the law should be altered, for while Mr. Hilton Carter's statement may be sufficiently reassuring for the time being, there can be no certainty that the hall will be perpetually managed with equal regard for the public safety unless it comes under the control of the responsible public authority.



## IN PARLIAMENT.

(By Our Press Gallery Representative.)

*The Condition of St. Paul's Cathedral.*

In the House of Commons,

Mr. Cathcart Wason asked the Prime Minister if he was aware of the anxiety caused by the proposals of the London County Council to construct important works in the neighbourhood of St. Paul's Cathedral and the report of Sir Francis Fox thereon, and whether, in view of the national and material interests centred in the cathedral, he proposed to institute any inquiry into the matter.

Mr. Asquith in reply said: There does not at present appear to be any necessity for such an inquiry, since those responsible for the safety of the cathedral are fully aware of the danger, and the sanction of Parliament will have to be obtained for the works referred to.

Mr. Allen Baker asked if the Prime Minister was aware that in the same report by Sir Francis Fox complaint was made of damage done to the cathedral by cracking, etc., owing to the vibration caused by motor traffic on the south side of the cathedral.

Mr. Asquith asked for notice of that question.

Mr. Fred Hall inquired whether it was not a fact that reports had been issued by responsible officers of the London County Council dealing with the matter, who had said that as far as their experience went there was no danger in consequence of the projected tunnel.

Mr. Asquith replied: That may or may not be so, but I am quite sure a Committee of this House will not allow any scheme to be carried through which will endanger the stability of St. Paul's Cathedral.

The Prime Minister replied in a similar sense to another question addressed to him by Mr. Charles Bathurst.

*The New Government Buildings in Edinburgh.*

The anxiety which Scottish members have shown regarding the suitability of the designs of the new Government buildings, which are to take the place of the Calton Prison, on one of the most important sites in Edinburgh, found further expression in the House of Commons last week, when Mr. Wedgwood Benn, representing the First Commissioner of Works, was closely interrogated on the subject. It is understood that the model of the new buildings shows a massive pile treated in the Scottish baronial style, modified to suit the primary purpose of the buildings, which is to house the various Government departments now spread over different parts of the city.

Mr. Whyte asked Mr. Wedgwood Benn, as representing the First Commissioner of Works, whether he would state the reasons which led the advisory committee to sanction the proposal to leave the design of new Government buildings in Scotland in the hands of the officials of his department; and whether he would state by what process an independent architect of high standing was to be selected.

Mr. Benn, in reply, said: The existence of an Architectural Department in the Office of Works involves the general principle that designs and plans should be prepared, as a rule, within that Department. The Committee examined the designs and model of the proposed buildings, and decided to ask for the advice of an architectural assessor. Sir Robert

Lorimer has kindly consented to act in that capacity, and the Committee are now awaiting his report.

Mr. Pirie asked whether the final decision would rest with the Committee or with the House.

Mr. Benn said the responsibility for the design would rest with the First Commissioner of Works.

Mr. Whyte asked whether the Works Department, when it was constituted, was not intended for works of a comparatively minor character.

Mr. Benn said he should not like to say that it was so, but he asked for notice of the question.

Sir G. Younger asked whether the First Commissioner had the necessary amount of knowledge and experience to enable him to decide.

Mr. Pirie also wished to know if the First Commissioner had ever been in Edinburgh or if he knew anything about Scottish building and architecture.

Mr. Benn said the First Commissioner took every step to ensure that this building should in every respect be one worthy of the position and in consonance with Scottish opinion.

In reply to Lord Balcarras, Mr. Benn said the model on which the Committee had come to its conclusion was a considerable one, and members had been invited to inspect it.

Lord Balcarras asked whether any full-size drawings of the details were submitted to the Committee in amplification of the model.

Mr. Benn said that no doubt drawings did exist in the office.

Mr. Whyte asked whether the independent architect was chosen by the First Commissioner himself or called in by the Committee.

Mr. Benn said he thought the name was approved by the Committee and by the general consensus of public opinion.

Mr. Hogge asked whether the hon. member was aware that the Edinburgh University buildings, the Macewan Hall, the Usher Hall, the Art Galleries, and the Scott Monument were all the fruit of open competition, and that the King Edward VII. Memorial at Holyrood was to be open to competition among architects; and whether, therefore, in view of the fact that the proposed Government buildings on the site of the Calton Gaol would be the most important public building in Scotland, he would accede to the desire of the entire architectural profession to throw the designs of these buildings in the first instance open to public competition; and would he say how the small committee of four arrived at their decision that an open competition would be unnecessary, in view of the fact that they neither saw nor considered any alternative designs.

Mr. Benn said that no doubt the facts stated as to other buildings were correct. He had just replied to the remainder of the question.

Mr. Hogge asked how this Committee of four arrived at the decision that this was the best design when they had only one design before them.

Mr. Benn said the Committee decided that this would be a good and suitable design, subject to the advice and assistance of Sir Robert Lorimer.

Mr. Whyte asked to be informed whether a fee would be paid to the architect in question; and whether the First Commissioner of Works had received any representations on the subject from associations of Scottish architects.

Mr. Benn said Sir Robert Lorimer

would be paid a fee. The First Commissioner had received representations on the subject from associations of Scottish architects.

Mr. Hogge asked what attitude did the First Commissioner take up with regard to those representations?

Mr. Benn replied: In so far as they fall in with the course he intends to take he approves of them.

Mr. Whyte asked whether, since the question was put down on the paper, he had not seen representations from other and more important sources.

Mr. Benn replied that he was not aware of any formal communication to the Office of Works since the question was put down.

Mr. Lyell inquired whether Sir Robert Lorimer was to give his opinion at present, or was he to act in consultation with the Office of Works throughout?

Mr. Benn said he was to be in constant and unintermittent consultation. He added that the amount of the fees had not been decided.

*The School of Oriental Languages.*

Mr. Allen Baker asked whether, in connection with the conversion of the London Institution into a School of Oriental Languages, the possibility of making a new road from Finsbury Circus to South Place would be considered, and whether the construction of such a road would afford a suitable site for the School of Oriental Languages and at the same time, by appreciating the value of the property, help to meet the necessary charges.

Mr. Benn suggested that Mr. Baker should lay his suggestion before the City Corporation. The construction of a new road in the City would not be a matter for the First Commissioner to carry out.

*Modern Indian Architecture.*

Mr. King asked Mr. Harold Baker, as representing the Under Secretary for India, whether the Indian Government had undertaken, through the Archaeological Survey of India, to collect illustrations and statistics relative to modern Indian architecture and buildings, and if so when the material so collected would be available.

Mr. Baker, in reply, stated: Under Standing Orders issued in 1911 by the Government of India archaeological surveyors while on tour photograph any interesting types of modern Indian buildings and note the names, rates of remuneration, etc., of the principal craftsmen. Inquiry will be made as to when and in what form the material thus collected will be made available. The photographs have not yet been published. I am not sure that the collection is complete.

Mr. King asked whether the Government of India or the India Office had consulted Mr. J. Begg, the consulting architect of the Government of India, on the plan and architecture of the new Delhi and if so whether any report by him would be published; and if he had not been consulted whether he would be called on to report on the practicability of employing Indian architects and craftsmen in constructing the new capital.

Mr. Harold Baker, in reply, said: In the ordinary course of business the Government of India will take the opinion of their consulting architect on the proposed ground plan of the new capital, the designs for particular buildings, and the extent to which Indian craftsmen and designers can be employed. It is not usual to publish confidential reports of this kind, and the Secretary of State cannot say what course will be followed by the Indian Government in the present case.



## NEWS ITEMS.

### *The Builder's Account.*

"A solicitor's bill is like a builder's," said Mr. Symmons, the magistrate at Woolwich Police Court, on Thursday last. "When first you look at it you think you have been robbed, but when you go through it carefully you feel sure you have."

### *Change of Address.*

Mr. W. L. Lucas, architect, has removed to No. 2, Buckingham Street, Westminster, S.W., which will be his permanent office address on and after January 1st, owing to No. 9, Great George Street, having been purchased by Sir W. G. Armstrong Whitworth and Co.

### *William Jacks and Co.: Appointment of New Partners.*

Messrs. William Jacks and Co., merchants and engineers, announce that they have admitted into partnership Mr. Stewart Barry and Mr. R. Russell Walker, who have been for many years associated with the business.

### *Rolls of Insurance Stamps.*

The National Health Insurance Commission (England) give notice that health insurance stamps at 7d., 6d., and 4½d. can now be obtained in rolls of 500 stamps for use in stamp-affixing machines. Inquiries as to the arrangements for the sale of these rolls may be made at any head post office.

### *Industrial Contract Law.*

Commencing on Friday evening next, January 17th, at 7.30, at the Westminster Technical Institute, Vincent Square, Mr. Frank C. T. Tudsbery, barrister-at-law, will deliver a course of six lectures for engineers, contractors, architects, and others on "The Principles of Industrial Contract Law." The fee for the course is 2s. 6d.

### *A Government Appointment.*

Mr. Harold French, A.R.I.B.A., of the County Education Office, Derby (Mr. George H. Widdows, A.R.I.B.A., architect), has been successful in obtaining the recently advertised position on the Government staff in Ceylon. Mr. French is the tenth member of Mr. Widdows's staff to leave for a better appointment within the space of two and a half years.

### *Wirral Town-planning Scheme.*

The Local Government Board have given authority to the Rural District Council of Wirral to prepare a town-planning scheme under the Housing, Town Planning, etc., Act, 1909. The scheme authorised to be prepared will relate to an area of about 5,800 acres, consisting of the parishes of Great Sutton, Little Sutton, Childer Thornton, Hooton, and Eastham.

### *The Architecture of the House.*

On Thursday last at the L.C.C. School of Arts and Crafts, Southampton Row, Mr. W. H. Ansell, A.R.I.B.A., delivered the first of a series of twelve lectures on "The Architecture of the House through the Ages," the chair being taken by Professor Selwyn Image (Slade Professor of Fine Art at Oxford). Devoting his first lecture to a study of the historic Greek dwelling, Mr. Ansell compared the arrangement and character of the House of Ulysses, as described in the Odyssey, with the recently excavated remains of a similar house at Tiryns, and exhibited a series of lantern pictures of ancient Greek houses. The subject of the next lecture will be the Roman house.

### *Dover Marine Station.*

The final block in the sea wall, nearly 2,300 ft. long, by which more than 11 acres of water space have been reclaimed for the site of the new Marine Station at Dover, was laid on Wednesday last. The filling in of the reclaimed site with chalk from the eastern cliffs has been going on concurrently with the construction of the sea wall, so that the reclamation is practically complete. The foundations of the new Marine Station are also nearly completed. It will be 770 ft. in length, and will cover the greater part of the reclaimed area. The cost of the entire work will be about £600,000. The reclamation work and station foundation are being carried out by Messrs. Pearson and Son, who built the Dover Naval Harbour.

### *National Art.*

Lecturing on "The Art of English Men" at the Queen's Park Art Gallery, Manchester, Mr. Roger Oldham said that national art was the expression of national character, and the characteristics of a nation were the products of its geography and its history—the philosophic East with its unchanging calm, the solemn grandeur of Egypt, the faultless beauty of Greece, the strength of Rome, the mediæval pageantry of Italy, the mannered stateliness of France, the trim neatness of the Netherlands, the austerity of Scotland, and the homeliness of England. Scholars were at last beginning to realise that the Englishmen in the days gone by who painted the walls of our churches and fashioned the statues, the gargoyles, and the misereres, who illuminated the manuscripts and carved the ivories in mediæval England, were in no wise inferior to the much vaunted Italians and the craftsmen of the countries on the other side of the Channel. The Walpole Society was leading that the English school of portrait painting in miniature required much deeper and more documented study than had yet been spent upon it. Above all, perhaps the painting of the seventeenth and eighteenth centuries required patient and widespread investigation. Often famous names had been allowed to monopolise attention to the neglect of a very large number of excellent painters whose names were seldom heard.

### *Thomas Parsons and Sons' Annual Dinner.*

The annual dinner of Messrs. Thomas Parsons and Sons was held on Saturday, January 4th, at the Horse Shoe Hotel, Tottenham Court Road, when nearly one hundred of the firm's employees were present.

Mr. C. Withers, proposing the toast of "The Firm," said they would shortly be opening some very extensive showrooms in Oxford Street, to which members of the trade and of the architectural profession might be brought with the certainty of their finding much to interest them.

Mr. Theobalds, the works manager, in reply, first expressed deep sympathy with the widow of Mr. L. H. Lewis, one of the firm's most respected representatives, who died on January 3rd. Mr. Theobalds proceeded to express the confidence which the firm placed in their employees, who, he was sure, could be relied upon to do their utmost in dealing with the increased business which was sure to follow the opening of their new premises.

Mr. P. Gilliard, the senior traveller, proposed the health of Mr. C. Withers, who, as chief of the London office, had won the respect of both principals and employees.

The evening ended with a musical programme, which was given entirely by the company. The dinner and concert were arranged and carried out by Messrs. G. Mercer and W. H. Pantlin, to whom a hearty vote of thanks was given.

## ROYAL INSTITUTE OF ARCHITECTS OF IRELAND.

At an ordinary meeting of the Council of the Royal Institute of the Architects of Ireland, held on January 6th (the president, Mr. Albert E. Murray, R.H.A., in the chair), a communication was received from the Royal Institute of British Architects approving the amendments proposed in the articles of association, and the honorary secretary was instructed to send printed copies to the Board of Trade for their sanction. A further communication from the R.I.B.A. suggested that in places where there was a recognised school of architecture it might be desirable to entrust the conduct of the examinations to these schools, and the matter was referred to Professor Scott.

## COMING EVENTS.

### Wednesday, January 15.

Worshipful Company of Carpenters.—Mr. Herbert Batsford on "Craftsmanship in London as I have seen it," Carpenters' Hall, London Wall, at 7.45 p.m.

Northern Architectural Association.—Mr. A. B. Plummer, F.R.I.B.A., on "Holiday Notes in the North of France."

Edinburgh Architectural Association.—Mr. Arthur Seymour Jennings on "Recent Progress in House Paints and Painting, with Special Reference to Hygienic Paints."

### Thursday, January 16.

Camera Club.—Mr. Laurence A. Turner on "Woodcarving," at 8.30 p.m.

Society of Architects.—Mr. Herbert Freyberg, F.S.I., on "The Influence of Sanitary Science on the Comfort of Country Homes," 8 p.m.

### Friday, January 17.

Leicester and Leicestershire Society of Architects.—Rev. T. Wallace Watts on "Some Ancient Leicestershire Churches."

### Thursday, January 20.

Royal Institute of British Architects.—Mr. F. S. Baker, F.R.I.B.A., on "Canadian Architecture," at 8 p.m.

Institute of Sanitary Engineers.—Presidential Address by Mr. H. Percy Boulnois, M.Inst.C.E., at 8 p.m.

Liverpool Architectural Society.—Mr. E. Guy Dawber, F.R.I.B.A., on "Fountains."

### Wednesday, January 22.

Manchester Society of Architects.—Paper by Mr. L. March Philipps.

Edinburgh Architectural Association.—Mr. Ramsay Traquair, A.R.I.B.A., on "The Gothic Spirit."

### Thursday, January 23.

Architectural Association Camera Sketch and Debate Club.—Mr. L. M. Gotch, A.R.I.B.A., on "The Spirit of the West," at 8 p.m.

Leeds and Yorkshire Architectural Society.—Mr. A. W. Hennings, A.R.I.B.A., on "Old Buildings in Cheshire."



# THE ARCHITECTS' & BUILDERS' JOURNAL.

Wednesday, January 22, 1913.

Volume XXXVII. No. 941.

No. 17.



*(From Piranesi.)*



THE CHAMBER OF DEPUTIES IN THE PARLIAMENT HOUSE, VIENNA: DETAIL VIEW.  
TH. HANSEN, ARCHITECT.

*(See page 60.)*



# THE ARCHITECTS' & BUILDERS' JOURNAL.

JANUARY 22, 1913.

CAXTON HOUSE, WESTMINSTER.

VOLUME 37. No. 941.

## Recruiting the London Society.

AT last those in control of the London Society have vouchsafed us some sign of that body's continued existence. Many had thought, so cold has silence seemed after the preliminary blaze, that the fire must have died out. But the Mansion House meeting is answer enough for those that have allowed themselves to doubt.

Such as shrug their shoulders, therefore, and those, too, more numerous, who prefer ever to wait and see what happens, may now take heart. The London Society in its present form, or some other, is a factor that will endure, for those in control inspire full confidence in a successful issue. So let the hesitant hasten to join. Something is to be done; of that we are sufficiently assured. Anyone who cares in the least for any aspect of "our great City, this London, the metropolis of Empire," should support an organisation that aims at preserving such beauty as there is, and creating beauty where as yet there is none, besides, more generally, arousing the civic pride of London's citizens.

One may inquire, however, what, more precisely, is going to be done and how? Of course, we may explain to ourselves that "such steps as may be necessary will be taken, and that such means as shall prove expedient will be adopted," to pursue the purposes that, not more vaguely than is customary, are mentioned above; and, in addition, certain items enumerated by Sir Aston Webb in his well-considered speech—one might almost say pronouncement—will no doubt be vivaciously maintained. We learn, too, from the Society's card that "the Society will collect and provide such information as will enable its members to insist on due regard being given to the artistic as well as to the practical consideration. The necessity for co-operation between the various authorities who have control of our City will be emphasised." These things, however, are not—or, rather, this sort of thing is not—enough. We feel that if the London Society is to attain its object, which is (we speak by the book) "to draw together all lovers of London," if it is to realise its aim "to build up a strong public opinion and to provide a means by which Londoners can bring their influence to bear. . . . for the lasting good of this great City"; if those in control are really convinced that collective effort is essential to success—the Society and its council must as speedily as possible grant assurance that methods somewhat more in accordance with their printed aspiration than have as yet been apparent to us, will henceforth distinguish their procedure. It is hardly necessary to assert that this Journal is in complete accord with the ultimate object of the London Society—i.e., first, the creation of a scheme for the development, conservation, and improvement of London and its suburbs; and, secondly, the generation and co-ordination of public appreciation to ensure that scheme's fruition. All this is excellent. But there seems to be as yet no real and general conviction concerning the essential condition of the second, the final,

and, after all, the really important part of this programme.

How can the end be attained? How, at any rate—since no amount of enthusiasm for architecture alone could do it—can the London Society do its part? For a realisation of all the dreams of all the members of the council and all its committees will be but so much stone if those others, the expert, have, not a hand, but no heart in the matter. Each tiniest council, every landlord, every ratepayer, and anyone who builds, must welcome not interference but assistance, not coercion but a lead. The very term ratepayer—our current debasement of the proud word citizen—connoting commiseration, must cease to serve.

Our view is that the London Society, in so far as we have been able to estimate its attitude from the pronouncements of its more prominent supporters, is unaware of the inevitable duality of its task. It is a task worthy of great energies and of consistent devotion. For it must itself provide, not only schemes, projects, in one word, a plan, but also the widespread support that is to carry it through; it must aggregate, refine, and distil all streams of interest and enthusiasm, and at the same time create the nucleus around which that flow may crystallise. The Society's membership will tend to separate into complementary orders in correspondence with its double function—complementary of necessity, because either alone would prove futile. For the naturally smaller group, consisting of those qualified to work on committees, there is, of course, provision. But, so far as we can gather, the Society really fails to see where what should prove the bulk of its membership may find a field for anything more active than dutiful attendance at annual meetings and occasional terrifying debates. Apart from other considerations, how many even of those that can afford it are going to pay the guinea subscription just for this—a guinea or even any lesser sum? And yet it is upon a multitudinous membership that the ultimate success of the Society will depend.

First, then, how is the general membership to be increased? By such meetings as that at the Mansion House, with all their trumpeting? Undoubtedly. That gives a movement a certain status straight away. Many meetings of similar weight, a trifle more definite in intention, naturally, as things develop, will, we imagine, always be an asset in propaganda. But how further? By publishing, from the depths of an expert committee, a prayer for the leaving open of a way for some desirable road? Hardly. Be the proposal ever so excellent, and the proposers ever so reasonable; it may prove that they are indeed quite reasonable; it may show that the proposal is excellent; it may succeed even (though the only instance we know of appears, regrettably, to be a failure); but it will gather no crowd, it will raise no discussion, it will light no bonfires at all. Let us not be misunderstood. Work of the kind should be done, and we are glad that there is now a body of able and willing men in combination



expressly to do it. But no one is going to be inflamed by such a thing—save, perhaps, those to whom the request may be preferred.

But let the scheme show also the magnificence to ensue from that same road; let it exceed, if it cares to, the monetary aspect of the case—that aspect will, it always does, take care of itself—let it exceed even possibility, and have faith that possibility, too, will not allow itself to be outstripped; till the enthusiasm of the general be aroused. Thus and thus only may the membership be increased, and wide armies of sympathy be enrolled, so maintaining such a preponderance of public concern that the small still prayer within the prodigious project may gain a hearing.

A. B.

#### Architects and the Public Taste in Architecture.

THE responsibility for the lack of taste in architecture which is evinced by the general public is generally laid upon the public themselves, but, as was indicated in the leading article in our issue for last week, the cause is in great measure to be found in the seventy years' failure on the part of British architects to educate themselves. Without organised, logical training, with scarcely an apology for a philosophy, the merest farrago of loosely-conceived tenets, most of them demonstrably false, they became involved in a maze of by-ways and blind-alleys. Their confusion has been reflected in the popular attitude toward architecture. They failed to provide the environment through the influence of which public taste could most surely be formed and restrained. The time must be within the recollection of many readers when almost the entire architectural profession was so slightly equipped for its work that the collective æsthetic intelligence of any representative gathering of its members, such as a provincial or London society, was about equal to that of a sporting club. Whilst, still more recently it might have been said that architects in the mass were composed of 99 per cent. of more or less honest business men, leavened by 1 per cent. of romantic connoisseurs of primitive mediæval art, whose published vapourings were the most deplorable exhibitions of perverted industry and mental confusion that ever padded the pages of the professional Press.

One may accept as axiomatic the principle that a certain body of public taste is necessary to the existence of good architecture. As much as any other art it requires a congenial atmosphere of appreciation. Without support it will tend to become cryptic, unhealthy, and unreal. Nearly everyone acknowledges the impossibility of reviving the democratic enthusiasm for art supposed to have been characteristic of the Middle Ages. We remember too well Ruskin's efforts in that direction and their baneful results—amongst them the fact that the ghost of archæological Gothic is not yet laid. But an audience is necessary. It need not be large, and, under modern conditions, it can only be comparatively small, but it must be there, or the work is felt to be profitless. Satisfaction in self-expression is not the whole reward of the artist. The admiration of others is as powerful a motive; and the more fastidious the public, the greater the stimulus to fine production. A highly-educated, if limited, body of interest is a very necessary and salutary influence.

In the last resort, the education of any section of the public has always lain with the artists. They create its likes and dislikes. They instil into it its sense of discrimination. By the process of unconscious absorption, the public that cares for painting or sculpture or architecture acquires whatever it may have of taste. Surround a man with good pictures and, granted sufficient intelligence and opportunity to observe them, he will cease to care for bad. So it is in architecture. And the reason why more people in Paris than in London care for it is because there are more good buildings in the former than in

the latter. It is their influence which tells above everything else.

#### The Competition Complaint.

IT is only a fortnight since we had occasion to comment on a competition which was being promoted on very unsatisfactory lines, and now our attention is drawn to still another. This is the competition for a proposed village church at South Lancing. The vicar, apparently, is managing the whole affair, in conjunction with a committee, and, so far as we can ascertain, there is no mention of a professional assessor, despite the fact that a total expenditure of about £5,000 is contemplated. The particular features of the competition to which objection is taken are—that "the selection will be made by the committee, whose decision will be final," and that no premiums are offered, the architect whose design is selected being "either employed to see the same satisfactorily carried out, or a fee, to be agreed upon, will be paid for the plans." The site plan is to a scale of 100 ft. to the inch, without levels, and drawings are asked for "on the scale of about 6 ft. to the inch." If the R.I.B.A. Competitions Committee have not already done something in the matter, we recommend this competition to their notice.

#### The Embankment Scheme.

WE are glad to see that the London Society is giving its attention to the proposed embankment of the Thames on the south side between Westminster and London Bridges. This is a scheme which has been advocated in these columns on many occasions. But a technical paper can never hope to gain the support which is obtainable through the medium of a public body and the attention of the great dailies. To the latter, therefore, we commend the task of convincing the public of the great possibilities of the scheme, and the magnificent improvement which it would effect.

#### R.I.B.A. Prizes and Studentships.

AT the meeting of the Royal Institute of British Architects on Monday evening the awards of prizes and studentships for 1912-13 were announced as follows:—Soane Medallion and £100 (Subject: "A Terminal Railway Station"), James M. Whitelaw (London); Hon. Mention, H. C. Bradshaw (Liverpool), and R. W. Cable (London); Tite Prize—Certificate and £30 (Subject: "The Façade of a Royal Palace in a City"), Cyril A. Farey (London); Hon. Mention, Bryan Watson (London); Pugin Studentship—Silver Medal and £40, William Paterson; Hon. Mention, Joseph Hill and F. R. Howard; Grissell Gold Medal and 10 guineas (Subject: "A Riding School Constructed of Steel"), not awarded; Owen Jones Studentship—Certificate and £100, William Harvey; Hon. Mention, Ivor Beaumont, H. P. Huggill, and W. M. Keesey; Godwin Bursary—Silver Medal and £65, Charles Holden; Henry Saxon Snell Prize, £60, Vincent Hooper; Arthur Cates Prize, 40 guineas, C. F. Butt; Essay Prize—Institute Silver Medal and 25 guineas, W. G. Davies (Twickenham), 5 guineas each, Martin S. Briggs (London), and C. P. Walgate (London); Measured Drawings Prize—Institute Silver Medal and 10 guineas, H. C. Mason (Ambleside); Hon. Mention, W. L. B. Leach (London), G. Hemm (Heaton Chapel, nr. Stockport), and B. P. Gaymer (London).

The numbers of entries were:—Soane, 14; Tite, 29; Pugin, 8; Grissell, 8; Owen Jones, 5; Godwin Bursary, 3; Henry Saxon Snell Prize, 3; Arthur Cates Prize, 1; Essay, 13; Measured Drawings, 9.

The drawings are now on exhibition in the R.I.B.A. Galleries, 9, Conduit Street, W., from 10 to 8 (excepting Saturdays, when the hours will be from 10 to 6). The exhibition will close on February 3rd.



## ARCHITECTURAL SCENERY AT THE SAVOY THEATRE.

THE stage setting of Mr. Granville Barker's two Shakespearean productions at the Savoy Theatre represents a departure in modern theatrical tradition of great interest to all architects. Apart altogether from the intrinsic power and charm of the plays themselves—"The Winter's Tale" and "Twelfth Night"—which have been fully revealed for the first time for several centuries by the simple method of giving plot and counter-plot, scene and scene, as Shakespeare wrote them, Mr. Barker has in his setting achieved a new and startling beauty of presentation, the underlying qualities of which are strictly architec-

venue with startling rapidity as his plot developed. This quick change of scene, undivided by any waiting space, which was intensely valuable in giving variety and interest to a complicated theme, has been the despair of the modern producer. Mr. Barker has been successful in solving the problem by a partial return to Elizabethan methods. It is, however, in his big effects on his main or picture stage that Mr. Barker has used the elemental qualities of architecture with such striking success. His building is reduced to the simplest forms, so that its symbolic character is the more clearly displayed. It bears, indeed, the same re-



ARCHITECTURAL SCENERY TO "TWELFTH NIGHT" AT THE SAVOY THEATRE.

tural. In place of the ordinary paraphernalia of wings, back-cloths, and sky borders, on which an illusion of solidity is attempted by a series of impossible perspective drawings, we have at the Savoy solidity itself.

Of scenery in the ordinary sense of the term there is none. Its place is taken by solid architectural forms, or by simple curtains on which a symbolic design has been lightly drawn. These curtains, it may be mentioned in passing, serve the useful purpose of cutting off the apron or front stage from the main or picture stage when a short scene, such as a meeting by the seashore or outside the walls of a city, is given. The Elizabethan dramatist, dispensing with all scenery and leaving everything to the imagination of the audience, had nothing to deter him from changing his

lation to the ordinary realistic stage architecture that the impressionistic designs on his veils or drop-cloths bear to the real cities and seas they indicate, and the result is a much clearer appeal to the imagination.

The main architectural qualities by which Mr. Barker obtains his effects are symmetry and scale. His palace scene in "The Winter's Tale" consisted simply of a range of square white columns running round three sides of the stage. They were of no known order of architecture; they had neither capitals to finish them nor lintels to join them. They had instead a rather meaningless little pedestal of diminishing blocks at the head of each. But by reason of their size and symmetrical arrangement, and by the curtains of cloth of gold between them, the idea of kingly court



was admirably suggested. The simplicity of the scheme enhanced by contrast the action of the players, who in this play wore very successful baroque dresses designed by Mr. Albert Rothenstein. If, from a purely pictorial point of view, these dresses clashed somewhat in idea with the simplicity of the stage setting, their effect against the white and gold background was in itself highly dramatic.

In the present play of "Twelfth Night" the courtyard garden of Olivia's palace is suggested by similar means. Here, as will be seen in the illustration on the preceding page (which, however, gives a very inadequate idea of the striking character of the scene), a simplified early Italian baldacchino-like structure, with pink columns and roof, stands raised on a flight of steps against the

against the plain white walls. The richness is given by the dresses and the grouping of the figures, which play the same part to the background that sculpture does to architecture.

From this slight description, and from the only photograph available, no one can gather the extraordinarily impressive effect which has been obtained. This architecture of Mr. Barker's and Mr. Norman Wilkinson's is as far removed from the ordinary realistic architecture of the stage as it is from the architecture of the world outside; and yet no architect can visit the Savoy without feeling something of the thrill given by the first sight of a great classical monument. It has the imaginative quality of those striking designs for Italian masques by Bibiena which we have recently seen illustrated in Professor Blomfield's book on archi-



THE OLYMPIC THEATRE, VICENZA. DESIGNED BY PALLADIO: EXECUTED BY V. SCAMOZZI.

white background of the theatre—possibly the bare back wall of the stage. Leading down to it on either side are two flights of steps from two porches of similar design to the central feature. These porches make the chief exits and entrances, and some of the most effective moments of the play are caused by the processions of richly clad figures with black attendants up and down these stairways and under the porches. In the foreground the garden is indicated by the cut trees on either hand, which obey the same principle of suggesting an object rather than giving a realistic presentation of it. They are, indeed, as obviously wooden as the trees in a child's Noah's Ark. The only complaint against them can be that they are Dutch in feeling rather than Early Italian. Against these trees are placed two benches of solid gold. The colour scheme then consists of pink, green, and gold

tectural drawing; only in these latter, while the abstract qualities are retained, the artist has been able to introduce without detracting from his main appeal a greater wealth of detail. Palladio, who built a theatre with fixed scenery at Vicenza, carried the idea of architectural scenery still further, and made it, like the colonnades of a Roman theatre, a fixed background for every play. We feel, however, in looking at this to-day, that only very few plays, and those of a highly artificial order, would be suited to so pompous a setting. Mr. Granville Barker, while obtaining the monumental effects of Palladio and the Romans, has done so in a way which makes possible their modification to suit the varying character of individual plays. It is a noteworthy achievement, which architects of all artists should welcome, as by its means their art is restored to the theatre in a very real sense.

C. H. R.



## HERE AND THERE.

THAT the topics of to-day have been the topics of yesterday is manifest to any who have had an experience extending over a long period. Yet in turning back to the record of years past it is surprising, and not a little amusing, to note the hardihood of some matters. It was with a fairly strong suspicion of this that I referred to the building journals for the week ended January 24th, 1863, in order to see what the profession was thinking about fifty years ago: and as I went through the columns the truth embodied in Solomon's adage became painfully evident. For architects fifty years ago were discussing things which still remain unsettled, and many a familiar platitude catches the eye on the printed page. Excepting Delhi as a speciality, we have now no Battle of the Styles, but does not this extract from a leading article recall many another of our own day? "We must continue in our efforts to adapt one style at least by shaking off the archaisms of the past, and giving it a Victorian wear and currency. Till this is done, or at any rate attempted, it would be futile to expect nineteenth-century architecture to take its place as a chapter of petrified history." Unfortunately the houses of the 'sixties, and, worse still, of the 'eighties are very much "petrified history," and they still abound to blight our architectural existence. The question of design meets us, too, in another leader—it might have been written yesterday, so familiar is its plea!—in which emphasis is placed on the need for a monumental training: for after informing us that "the usual process in erecting a public memorial seems to be as follows—a statue is procured (frequently the result of the grossest job in the selection and patronage of a favoured artist) and then, the funds having been all lavished on the fortunate protégé of some influential patron, the pedestal and accessories become the result of some contract job, done at the lowest possible price, and of course in the worst possible manner"—we are led to the Beaux-Arts as the ideal to follow, and in a moment of inspiration I am sure the writer might have thrust the atelier system upon us, thereby forestalling the Society of Architects by half a century.

The next familiar friend I encounter in these pages of long ago is the competition complaint. Apparently things were no better then than they are to-day. One correspondent wants to know "what has become of the designs submitted for Carlisle Bridge, for months have passed by since they were sent in," while the Glasgow Architectural Society was warmly discussing the whole subject of competitions, "the abuses of the system having become intolerable, calling urgently either for effective control or total extinction" (a consummation still unrealised!). But in the printed record for this week ended January 24th, 1863, the most enlivening example is the competition for a Wesleyan chapel and schools at Plymouth. This is to cost £5,000, and the building committee, with great modesty, require "a specification as full and explicit as possible" to be sent with each design. The competitors are informed that they "must look solely" to the premiums for their recompense, "as the committee do not engage to employ either of the architects whose work may be accepted," and to remove all doubt the conditions joyously go on to state that "the committee will be entitled to receive from the successful competitor all requisite drawings and specifications to enable them to carry out the work, for which, and to cover all correspondence incident to the completion of the building, a sum not exceeding £50 will be paid on the works being completed": which goes to show that

the woes of recent correspondents in this Journal are not so dire as those that have preceded them, for it is not likely that the most misguided building committee to-day would ask architects to compete for a premium alone, on a basis of 1 per cent.

In the reports of proceedings of the architectural societies for the week under consideration I find that the Liverpool Society had resolved to join the Architectural Alliance, whatever that may have been, and that the R.I.B.A. were concerned with a paper on how to keep damp out of buildings, in which the author cites the apocryphal case of the Victoria Dock Church, which had a damp-course "that so effectually cut off all damp from the foundations that anyone might see through the walls the traffic on the other side." Another paper refers to the housing problem—still perennially fresh—and there is a report of a further meeting of the R.I.B.A. (at that time the "Institute of Architects") "to consider the recent foolish regulations to shut out reporters and prevent the publication in the journals of papers read"—this being evidently the case of some architectural Roger l'Estrange.

A "much vexed" question in this week of the 'sixties was the selection of a site for the new St. Thomas's Hospital, for which many proposals were being put forward, the wildest of them countenancing the pulling down of Bethlehem Hospital and the erection of the new building on the site.

On one page I am caught by the optimistic description of a "geodetic and topographic instrument" called the Diastasiometre, which is "to combine in one all the instruments now used in surveying"; and on another by the description of a method of "photosculture," which is "engrossing the attention of artists," in regard to which method it is explained that a number of photographs are taken, their outlines reduced or enlarged by means of a pantograph, and with these data the statue is produced "in so short a time as hardly to be credited," so that "any person wanting his statue to be made is photographed in various directions, and two days later he may call for his statuette in clay"!

Among the news matter I read that the last of Hungerford Suspension Bridge was then being demolished, only the chains and the two lofty "Italian towers" in the centre of the river then remaining; that the Metropolitan Railway had just completed its first week of traffic, "upwards of 225,000 persons having been conveyed on it without accident"; that the United Kingdom Telegraph Co., having adopted Hughes's invention (first introduced in America, then taken to France, and then brought to this country), were undertaking the transmission of telegrams at the rate of 1s. for twenty words; and other interesting information. But what I like most about the journals of the period is their catholicity of interest, which, as I see in this week ended January 24th, 1863, is sufficient to announce that "on Tuesday last there was a remarkably high tide in the Medway," to print a report of a paper at the Society of Arts "On the Drama and Poetry of Spain," to include a list of "lodgings for young men in London," and, finally, to engage in a discussion on "Science Elucidative of Scripture and Not Antagonistic of It."

Finally it is worth recording that the readers of the building papers of fifty years ago had to be content with a single-page—or at most a page and a half—as their weekly illustrated portion: for those were the days of the wood block, and there was no abundance of photographs and drawings such as readers of this Journal are accustomed to receive for a modest twopence. The modern reader therefore should be the more grateful for his fate.

UBIQUE.



# THE REVISED PLAN FOR THE NEW FEDERAL CAPITAL OF AUSTRALIA.

AS briefly indicated in last week's issue, the story of the competition for the Federal Capital of Australia pursues its melancholy course. Our readers will remember that when the conditions were issued the Royal Institute of British Architects and the American Institute of Architects promptly protested against the clause dealing with the assessors, and on no attention being paid to them, both Institutes formally requested their members to refrain from competing. Here, then, was a most regrettable beginning; the Commonwealth of Australia promoting a competition for its capital, and the two countries whose architects were most likely to understand her needs practically forbidden to compete: if an Australian did not win, who more fitting than an Englishman, who would probably settle there and add the value of his personality to the younger country? Again, the Americans are admittedly ahead of us in the study of monumental town planning, and no one could have felt anything but satisfaction if one of her many brilliant

city planners had succeeded, so similar in many respects are the United States to Australia. We pass over the more narrow imperial side of the question, as our sympathies in architecture are entirely cosmopolitan, and it matters little to us whether the author of the plan for one of our colonial capitals be of French, German, or of English-speaking race, provided the plan be a fine one; but we do regret that the ill-advised stubbornness of Australia should deny itself the best brains of the latter.

In point of fact an American did win the competition, the second and third premiums going to a Finn and a Frenchman. The winning design by Mr. Walter Burley Griffin, of Chicago, produced singularly little critical analysis from the English Press, with one notable exception, in which the critic, considering the design on a high plane, found fault with two points—the direction of its main axis and the formation of a chain of lakes in the centre of the city. Still, it was evident that the author, particularly in the direction of





monumental grouping, had considerable powers, and being a young man it was generally hoped that he might make a study of more recent city planning development than his design showed acquaintance with, and eventually create for Australia a tolerably fine capital. In a word, the competition had been mismanaged; but there was a prospect of the final result turning out better than was expected, and the assessors had stumbled on a design which, though full of faults, was the work of a young man of ability.

The latest development of this strange eventful history dispels any such prospect: the Australian authorities having become possessed by means of the premiums of the first designs, and having purchased another by a local architect, considered that it was only necessary to hand them over to a Departmental Board with full powers to do what they liked with them. The Departmental Board has produced a report, a plan, and a perspective view, after "having settled certain governing principles" and pursued "its deliberations at the site of the seat of Government, where the designs which won the first, second, and third prizes, and the design purchased by the Minister, received consideration, having regard to the requirements of the city and the configuration of the site, together with local and general conditions." Looking at these three productions we are at a loss to say which astonishes us most—the naïveté of the Report, the badness of the plan, or the pitiful conception of what a capital should be as evidenced by the perspective. We need only quote one paragraph from the Report: "The Board was unable to recommend the adoption of any one of the designs. The Board advises the approval of the plan for the lay-out of the city as prepared by itself. This plan incorporates such features from the premiated and purchased designs as, in the opinion of the Board, are warranted."

Before criticising the plan, it may be well to comment on the professional aspect of the Board's recommendations. Broadly speaking, there are two methods of obtaining a town plan for the extension of an existing city or the creation of a new one when the problem to be solved is greater than can be dealt with by the permanent officials: one method we call the American, the other the German. The former, which has many points in its favour, consists in the appointment of a small Commission of well-known experts representing, probably, different aspects of the problem. This method has been adopted with great success for Washington and many other American cities, and we are trying it for Delhi. The German method works by way of competition, and is conducted on lines very similar to architectural competitions: Berlin and Düsseldorf are recent examples. But when the premiums are paid, a town-planning competition presents a more irregular procedure than an architectural one; instead of a building which is to be carried out at once, we have a town which is developing gradually; again, a town being so much more complicated than a building, the best competition design will need remodelling in all but its basic elements. In fact, the prime object of a town-planning competition may be said to be the discovery of the man rather than the plan. Having got the man, the way he is to be used must vary in different cases: sometimes, as at Vienna, he may be put in permanent charge of a bureau in order to carry out the plan by degrees, at others he may be employed in a consulting capacity in order to give advice from time to time on any modification that may be necessary; and lastly he may be engaged as an architect to carry out the work at a percentage on the cost. The last is, of course, the ideal arrangement, but in practice it is more difficult to apply than in architecture. The Australian authorities have taken another course—they have thrown over the man and handed over his plan and those of his premiated colleagues to the tender mercies of a Departmental Board with orders to

crib morsels from them here and there and botch them together into a patchwork curiosity.

The result, in the plan which has been finally decided upon, is only what might have been expected. To paraphrase the criticism of Sir Fretful Plagiary's Tragedy, "even the finest pieces that they have stolen are of no service to them; for the poverty of their own invention prevents their assimilating; so that they lie on the surface like lumps of marl on a barren moor, encumbering what is not in their power to fertilise!"

The direction of the main axis and the chain of lakes (the two features adversely criticised) they have lifted from Mr. Griffin's design, but in doing so they have traduced his water treatment and lost whatever qualities his features possessed. The plan appears to acknowledge but one principle of town design, that of dotting every rising point of ground with a building, but without any thought of logical grouping. Thus the cathedral jostles the capitol, a police barracks shadows a school, and an orphanage is associated with the mint. Around the railway station, whose wrong axis has to be laboriously corrected, are grouped a library, post office, opera house, bank, and museum. Our readers can judge for themselves the effect of the backs of a training college and technical school as seen from the capitol, and the astonishing shapes which a never failing ingenuity has been able to devise for sites. The road plotting is too grotesque for serious criticism, and appears to be largely the result of an office-boy's amusing himself with a pair of bow-compasses.

And this is the descendant of Pergamos, Rome, Paris, Washington, and Vienna!

## A PRACTICAL COMPENDIUM.

THAT fearsome bugbear of architects and builders, the dry-rot fungus, has caused such a vast amount of loss and litigation that the continued neglect to study it exhaustively is surprising. Such study is a matter for the man of science rather than for the architect. The latter's knowledge of it may be extensive and peculiar, but is not conclusive. Mr. Paul Ogden, for instance, because he probably knows more about it than most investigators, hesitates to generalise on the observed phenomena, whereas those whose knowledge of the subject is far inferior to his do not hesitate to dogmatise. In the law courts it is almost invariably held that where dry-rot causes damage the architect or the builder is responsible for it; and this view is taken because the lawyers know so little about it. In the fulness of their ignorance they award damages to the sufferer, without duly considering whether it was really in the power of the architect or the builder to prevent the suffering. In a racy article on "Responsibility for Dry Rot," which has been specially contributed by Mr. Ogden to the new issue (No. 15) of "Specification," the author, realising more clearly than do the legal luminaries the difficulties of equitably fixing the responsibility, shows, in a few terse sentences, that some of the precautions of which the infallibility has been assumed are not wholly in accord with the data upon which they are supposed to be based. Most authorities assert that the condition most favourable to the development of dry-rot is warm, damp, stagnant air; and Mr. Ogden's comment is: "What degree of warmth and what amount of moisture in the air are necessary for such development, so far as I am aware, is not known. Dry-rot fungus has been known to grow across air-grids. There have been instances, under parallel conditions, where dry-rot was found under floors in greater quantity where there were more grids than where there were fewer." Again, so far as can be ascertained, the



proportion of the area of perforation in an air-grid to the cubical contents of the space to be ventilated, which would grant immunity from dry-rot, is not known. Such expressions as "sufficient" and "adequate" really stand for unknown quantities. "If too many air-grids are inserted in the walls, it is stated that you have admitted too much moisture under the floor; if too few, it is stated that you have not admitted sufficient air. These expressions 'too few' and 'too many' are only used for the purpose of making a case." These and other reasons surely justify Mr. Ogden in declaring that "Architects should not take responsibility for dry-rot. If the difficulties and the risks are explained to the clients, it will be found that they are amenable to reason." He adds, guardedly, that "the following expedients are supposed to prevent the generation of dry-rot in buildings: Air-grids in walls; the coating with one of the several wood-preservatives that are available of the whole of the timbers of a floor and the underside of the floor-boards; the 'pockets' in the walls which receive the ends of beams and joists; the whole of the walls, and, where concrete is used, the whole of the surface of the concrete. Concrete sometimes cracks and allows old tree-roots, etc., to grow through—not an uncommon source of dry-rot. Shavings left by the workmen all over the building, in positions difficult of access, and mostly out of sight, are another source of dry-rot. Sawdust in the teeth of saws used in cutting up affected timber has been known to carry the disease from one building to another. The 'pockets' for joists and beams on all the upper floors, and the joists and beams themselves, especially on the end where the wood is on the 'cross-cut,' should have two coats of preservative. . . The whole of the roof-timbers and gutter-boards should be coated, especially all cross-cuts in timber." Other important special articles in this new issue (for which there has been an extraordinarily large demand) include "Some Legal Aspects of Specifications," in which Mr. W. Valentine Ball deals with the vital points to be observed; "Specifications from the Contractor's Point of View," in which Mr. A. G. White, General Secretary of the National Federation of Building Trades Employers, gives authoritative expression to the carefully ascertained opinions of practical builders on what they consider to be common faults in drafting; "Specification Points for the Demolition of Buildings," in which Mr. G. Metson, Licentiate R.I.B.A., performs the very useful service of assembling for the first time the full data for "house-breaking." In "The Specification of a Garden City House" Mr. T. Millwood Wilson opportunely offers some results of his extensive experience, giving a model specification, illustrated with three full-page plates of elevations, sections and plans. "Country House Lighting and Methods of Illumination" are dealt with in two articles, in which the various means of lighting are examined and compared, the first article being by illuminating engineers, and the other by an architect, Mr. H. V. Milnes Emerson, A.R.I.B.A. An illustrated article on "Safes and Strong Rooms" sheds considerable light on a subject upon which but little information had been hitherto forthcoming. In the Municipal Engineering Section, which in this issue has been considerably amplified, are many other important articles.

Altogether, this volume of 528 pages, with its efficient indexing, comes nearer than ever to the proprietors' ideal—"to produce a work that should become really indispensable to the architect, surveyor, and municipal officer—a technical library in itself, comprehending in one volume all the essential data that previously had been scattered among a large number of separate treatises."

## THE PARLIAMENT HOUSE, VIENNA.

ON the Centre Plate in this issue we illustrate the Chamber of Deputies in the Parliament House, Vienna, and on page 82 we reproduce a detail photograph of this magnificent apartment.

It was in 1865 that the Austrian Government instituted a competition for the new Parliament House, and they received designs from six architects, none of which, however, were accepted. At that time it was contemplated to erect two separate buildings—one for the deputies and the other for the seigneurs. But in 1872 it was decided that both Chambers should be brought together in a single building, and Th. Hansen, of Vienna, was instructed to draw out a scheme on this basis. His design was approved in 1873, and work on the new Parliament House was begun the same year. It occupied nine years.

The two Chambers are alike, being semi-circular in plan and arranged on either side of a large central colonnaded hall. The diameter of each chamber is 34 metres (about 113 ft.) and the height 15 metres (about 50 ft.). There is seating accommodation for 364 members. A corridor extends around the enclosing wall, with numerous doorways leading into the chamber. There is a slight rake from the tables next the president's chair to the back row of seats, the former being at the same level as the latter. At first-floor level is a balcony carried by caryatids and hermes, with boxes for the Imperial representatives, distinguished personages, and the Press, while at the second-floor level is a gallery for the public.

The semi-circular treatment is in itself very fine, but perhaps the most striking feature is the series of Ionic columns carrying a pediment against the flat wall behind the president's chair and ministers' desks; the panels between the upper portions of the columns being filled with paintings by Professor Eisenmenger.

It will be seen from the illustrations that the work is on a very superb scale, and as the other apartments in the great building are carried out in a similar magnificent manner, it is not surprising to learn that the total cost of the Parliament House was more than three-quarters of a million.

## THE ENGLISH PRIX DE ROME.

THE subject set for the preliminary competition for the Grand Prix at the newly-founded British School at Rome was "A Mausoleum on a rocky islet in a lake of not more than 3,000 ft. super. in area at the water level." The designs, which exceed one hundred, are about to be assessed by the Faculty. Among those submitted was a fine design by Mr. H. C. Bradshaw, of the Liverpool School of Architecture, and as this was disallowed on technical grounds (the application having been made too late) we have thought it of interest to publish the perspective, which is reproduced on page 93 of this issue.

## SCULPTURE ON THE OPERA HOUSE, PARIS.

WE publish this week, on page 95, the first of a series of photographs showing details of the sculpture and ornament on the Opera House, Paris, by Charles Garnier. These are not only superb in themselves; they offer also an abundance of suggestions for modern buildings, and as such details are rarely published we think that our new series should be of much interest and value.







THE CHAMBER OF DEPUTIES IN THE PARLIA





NT HOUSE, VIENNA. TH. HANSEN, ARCHITECT.







THE OLYMPIC THEATRE, VICENZA. DESIGNED BY PALLADIO: EXECUTED BY V. SCAMOZZI.

(See page 85.)





STUDENTS' PAGE.



DESIGN FOR A MAUSOLEUM ON A ROCKY ISLET IN A LAKE (BRITISH SCHOOL AT ROME SUBJECT).

BY H. C. BRADSHAW.

(See page 90)



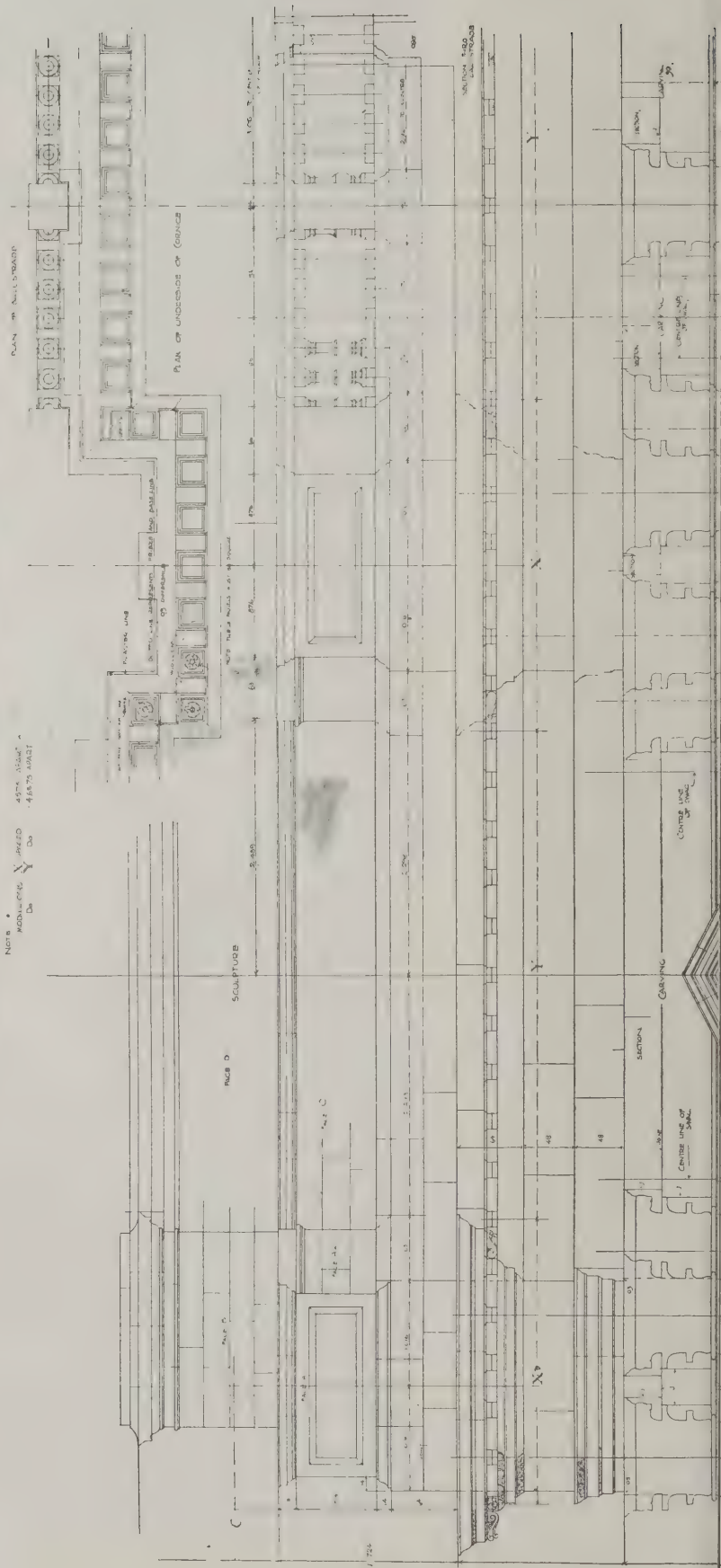
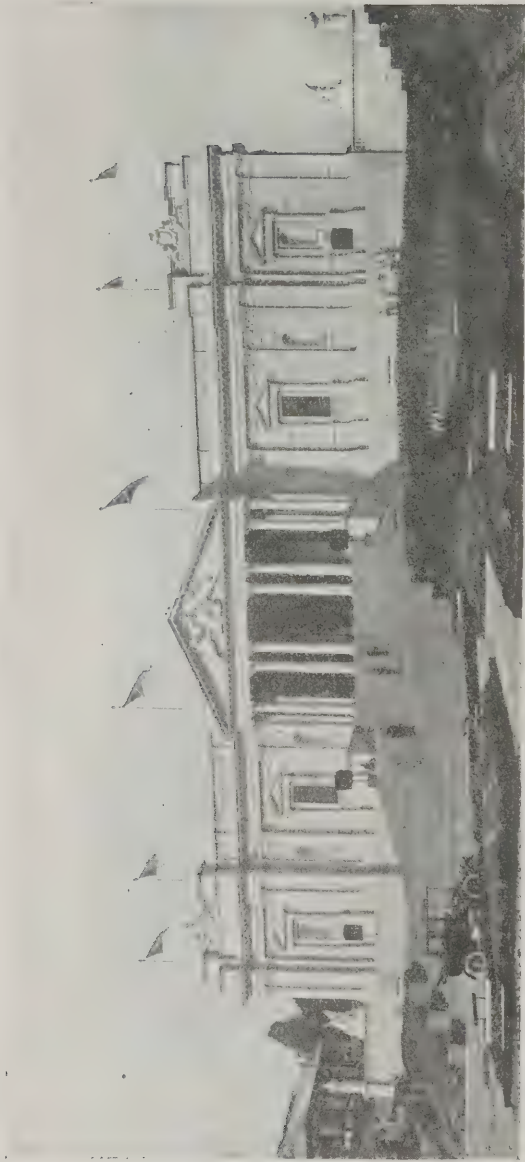




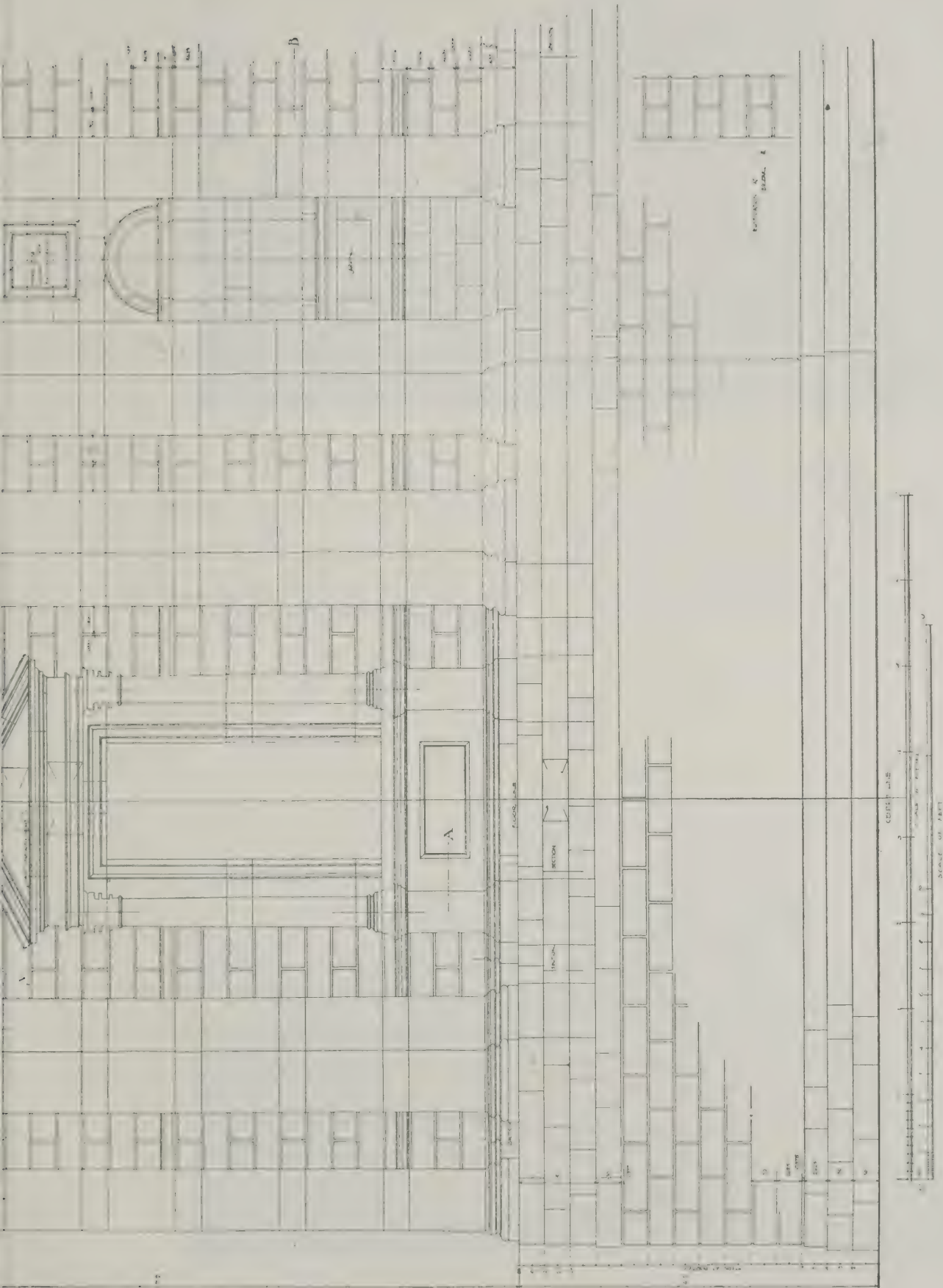
DETAILS OF SCULPTURE ON THE OPERA HOUSE, PARIS.—I.

(See page 90.)

BRITISH SCHOOL  
AT ROME  
DETAIL OF END  
PROJECTIONS  
E.L. LUYTENS, FRIBA.  
ARCHITECT

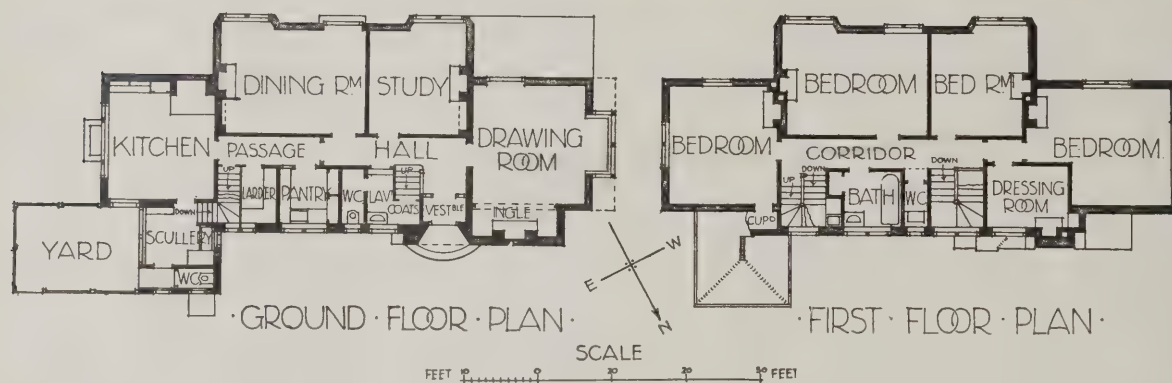






WORKING DRAWINGS BY WELL-KNOWN ARCHITECTS - NIV.

(See page 101.)



MODERN SMALL HOUSES. XIII.—"SEATON HOUSE," CAMBERLEY, SURREY.

H. R. AND B. A. POULTER, ARCHITECTS.



## CORRESPONDENCE.

*The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents.*

*Correspondents are asked to be brief and to write on one side only of the paper.*

*The Future of English Architecture.*

*To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.*

SIRS,—Mr. Goulburn Lovell's letter in your issue of January 8th comes as somewhat of a shock to those of us who have any hope for the future of English architecture.

It seems to me, that if Mr. Lovell and the Committee of which he is the hon. secretary are at all successful in carrying out their intentions, then English architecture as such will cease to exist, and the name of England, as far as all matters of art are concerned, will become a mere geographical description.

Carefully examined, what does this proposition of the Beaux-Arts Committee really amount to?

Mr. Lovell states in his letter that "It is intended that the traditions and methods of the Ateliers in Paris shall be adhered to so far as it is possible to combine them with English practice, but the Ateliers however will make no attempt to insist on the imitation of French features and detail or to influence the student in this direction."

It is interesting in this connection to note that of the eight members composing the jury five are Frenchmen, while of the remaining three, one is an Englishman trained in France and in partnership with a Frenchman.

Oh happy student in the Franco-British Atelier! Under the guidance of Frenchmen you will be initiated into the glories bequeathed to you by Jones, Wren, Chambers, and Cockerell, and any attempts to copy the details of the Grand Palais will be rigorously suppressed! Are we seriously asked to believe that such a committee, christened with a French name, with an overwhelming French influence, under the patronage of the French Société des Architectes Diplômés par le Gouvernement, can have any deeply rooted sympathy with English architecture, can help us to any logical development or realisation of our inherited tradition?

This proposal to found Ateliers in this country modelled on those of France, directed by Frenchmen, means, if it means anything, that a deliberate attempt will be made to convert our own national expression into one that is foreign and alien to us.

We are not French, we never can be French, and much as we may admire French architecture, we cannot produce it if we would (and I might add we would not if we could): the most that we could hope to do would be to produce a third-rate imitation of it.

The brilliant work of such a firm as Messrs. Mewès and Davis serves at once as a challenge and a warning. London is all the richer for the Hotel Ritz, the Automobile Club, and the offices of the "Morning Post"; in dignity of composition, in detail and in scale they are everything that the buildings of a great city should be; they have the effect of making much of our modern buildings look poor and commonplace by comparison; but they are beautiful exotics, children of a foreign birth—their home is properly in Paris, and they look a little cold and lost in London.

To send a certain number of our students to the Ecole des Beaux-Arts is both admirable and wise, in the same way that we send students to the Universities of France and Germany—but it would be quite another matter to hand over the Senate of Cambridge, for instance, to a committee composed of a preponderating number of Frenchmen or Germans.

It might be desirable to invite a certain number of

distinguished French architects to teach in our schools, in much the same way that our universities invite foreign professors—but English institutions, if they are to remain English in anything else but name, must remain in English hands.

What would be thought, for instance, if we as a nation proposed to adopt some sort of universal military service, and invited a German to fill the position of Minister of War, with an army staff composed almost exclusively of Germans?

Mr. Goulburn Lovell's letter and the proposals of his committee are particularly inopportune. This country is at the present time making tremendous efforts to better its architectural education; to give only one instance, the Architectural School of Liverpool University—remote from the capital, and with no particular advantages in the way of great wealth or large endowments—has by systematic training and concerted effort along logical and traditional lines, produced numbers of students, during the last few years, who can express themselves readily and intelligently, men who will undoubtedly largely influence the future architecture of this country, and who will not unworthily uphold the great tradition of the English masters.

If Liverpool, with her many disadvantages, can do this, what could not London do, once she has set her mind to the task?

Given time, we shall work out our own salvation, without the help of foreign management, and without the great sacrifice of English hopes demanded by the new Beaux-Arts Committee in what, from my point of view, is a policy of humiliation.

London, W.C.

STANLEY C. RAMSEY.

*Architectural Training.*

*To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.*

SIRS,—I see that in publishing a letter from the Honorary Secretary of the Beaux-Arts Committee in your issue of January 8th you have inserted it under the heading of "The Society of Architects' Scheme for Ateliers," and in criticising the proposals you further identify the Society with the Committee of Management and saddle the Society with the statement that "their school is going to supplement the deficiencies of other established institutions."

What I wish to make clear is that the Beaux-Arts Committee is an independent one, unconnected with any British architectural body, and that the views expressed in their letter are those of that Committee.

As it appears to be generally thought that the scheme is The Society of Architects', may I say that the proposal for the establishment in the British Isles of Ateliers of Architecture similar to those of the Ecole des Beaux-Arts was first made some months ago by several members of the R.I.B.A., who suggested to a member of the Society that the latter, having the means at their disposal, should take up the question.

The Council of the Society, on being approached, appointed a Committee to consult other educationists and to inquire into the matter and report. This Committee, after personal inquiries in Paris and elsewhere, evolved a practical scheme which they considered should, in the interests of the profession, be carried into effect by an independent Committee; and, with the approval of the Council of the Society, they formed themselves into an independent Committee under the title of the "Beaux-Arts Committee to promote improved methods of architectural training in Britain."

The Society of Architects' share in the work, so far, has been to provide this Committee with the means and facilities for carrying into effect the pro-



posals made in the first instance by certain members of the R.I.B.A.

C. MCARTHUR BUTLER, Secretary.

[We do not know why the Society of Architects are now so anxious to disclaim the parentage of their very promising offspring. This scheme is in many ways a good scheme, and there is room for the experiment it proposes. The objection we took was to the confident way in which it was stated that all other schemes of education in existence were incomplete, and that nowhere was design taught on a logical or consistent system. We pointed out that in one school in England at least it was so taught—to excess as some think. It is stated that for the first atelier a studio has been taken in Wells Mews—off Wells Street, Oxford Street—where accommodation is to be provided for thirty drawing-boards: further, that the prospectus of the new scheme is drawn up, that the first atelier is to be directed by Messrs. Mewes and Davis as patrons and M. Chaurès as director in attendance, and that those who seek to enter the atelier should communicate with Mr. Arthur Davis, 107, Inverness Terrace, W.—EDS. A. AND B.J.]

*"The Problem of Smoky Chimneys."*

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—Mr. Edwin Gunn's article on this subject (January 15, p. 61) was useful and interesting. It is one which requires more thought than is sometimes spared to it. Is it not depressing both to client and architect when a house, otherwise satisfactory, proves in a certain wind to have a flue which refuses to do its duty?

The ease with which liquid is poured from a hock bottle suggests the ideal form for a smoke-flue, a wide-shouldered medicine bottle just the reverse. Undoubtedly the opening above the fire should be gathered over from all sides, as nearly as possible to the hock-bottle form. An indirect flue probably does, by its increased length, produce more draught, but is it certain there is any other gain except possibly to baffle rain? As to baffle-chambers or ledges, they constantly serve as good soot collectors. Chimneys require more frequent sweeping than they have usually, especially when a stove is solidly built up behind and there is no register, as in the case of some excellent slow-combustion sunk or raised fireplaces.

A couple of instances of difficulties overcome occur to me. A client was harassed by the smoke, in a certain wind, filling his surgery instead of ascending the flue. It was a one-storey building, much shut in by the house and trees. The chimney was a fair height, built in an external wall. I had the flue exposed from the outside, the gathering-over improved, and a six-inch drainpipe built in. "A1" was the verdict, "provided the stove is not drawn up the chimney!" This true story indicates that flues are sometimes too capacious, and that area, as well as height, requires consideration.

In the other case the house was exposed to fierce gales on the east coast of Kent. In a certain wind, with a fire burning in the back room on the ground floor, the smoke rose quite well, but returned through the next pot and flue down to the adjoining cold front room, thence beneath wide folding doors back to the warm room and fire, a circular tour of about 100 ft. A tall pot was placed on the offending flue and the evil cured. Since that experience it has occasionally proved advantageous to alternate the heights of adjacent chimney-pots.

With some diffidence one suggests that well-thought-out flues require no artificial extractors.

London, W.C.

A. O. COLLARD.

*Building Construction in Technical Schools.*

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—As a teacher of building construction, with fourteen years' experience at three different technical schools, I was much interested in, but somewhat surprised at, a few of the statements contained in your leading article of December 18th last, and before replying wished to verify some of the details.

To take first of all the enormous total of 50,000 persons connected with the building trades who are said to be attending classes held at the various technical institutes throughout the country. This figure seems to me to be very wide of the mark, for upon reference to the last Blue Book (1911) that I have available I can only make a total of 4,324 taking the various examinations (Stages I., II., III., and Honours. Note: This was the last examination held under the old regulations); and even assuming that only about 75 per cent. of those attending the schools took the examination, the total would be nearer 5,000 than 50,000.

Then, turning to the report of the City and Guilds of London Institute, which has just been issued, we find that the following numbers of students were in attendance (not examined) in the various classes: Plumbing, 2,766; carpentry and joinery, 2,944; brickwork, 330; mason's work, 306; plasterer's work, 84; painters and decorators, 1,602; and builders' quantities, 1,194, a total of 9,224, giving us a grand total of under 15,000, assuming that no student is taking more than one subject. So much for the 50,000.

Taking the trades followed by my students of the present session attending building construction classes, I estimate as follows the number of those likely to have any influence over the work they execute—that is to say, through their own initiative in design:

Architects, Surveyors, and Engineers, etc. ....	20%
Clerks, etc., in Builders' Offices .....	12%
Bricklayers, Masons, Carpenters, Plumbers, etc. ....	68%

Or nearly three-quarters would have to do what they were engaged to do or lose their jobs. With the present increasing use of machinery, this is a very vital point, and accounts for much emigration.

The writer of your article seems to be unaware that the present Government syllabus provides for only two examinations, lower and higher, in place of four in the old, but requires nearly the same time for preparation—i.e., four years—to be successfully passed. In other words, there are two blank years in the impressionable period of the student's life.

Most teachers work to a syllabus for examination results, upon which the public commend or condemn his work. Personally, I prefer the old scheme, with an examination every year for the student to go for and thus prove if he has really benefited by the course of instruction.

Examining the new Government syllabus, one finds that at least half of the higher examination deals with structural engineering, such as the design of struts, braced and plate girders, strength of pin and riveted joints—surely enough matter for a separate subject, seeing that it goes into such minute details.

With regard to the majority of the teachers, I believe that they are drawn from the ranks of either practising architects or their chief assistants, and in the five towns in which I have been this has been so in each case. But I will admit that, owing to the change in the syllabus, the tendency is now to appoint the engineer as a teacher, as instanced in some recent appointment in which B.Sc. men seemed to have had the preference.



The real grievance is that architecture is classed as art and building construction as science, and in the majority of schools the art and the science are under two separate head teachers, who do not always work together, and thus springs up that jealousy which is not good for any school.

Your contributor next reports text-books. These are regarded by most teachers as being generally about ten years out of date. I had one sent to me only this session which contained such out-of-date details as wood bricks (9 in. by 4½ in. by 3 in.) for the fixing of joinery, and a trussed timber partition to carry three floors and its own weight: this last in the days of the broad-flange beam and reinforced concrete!

A fact which I think your contributor ought to have taken into account is that whereas the architectural student is, as a rule, either in an office during the day or is enabled to spend a few hours daily in the architectural school, the trades student often commences his work three or four hours earlier, has to walk or cycle sometimes a mile or two, and maybe more, to his work and back, and having been in the open most of the time, comes to school for another two hours, and is then naturally not at his best. How often have I noticed the lad just starting who can barely keep awake! It is a keen student who attends three nights a week at the schools. This gives him a total of about 180 hours during a session, or a little over three weeks at ordinary working hours. Often he takes three subjects, thus reducing the total to a week for each subject, and we all know that there are men who have been at the building trades all their lives and still admit that they have a lot to learn. The conclusion is obvious. These classes certainly ought to be made really interesting. I find that model bricks for illustrating the bonds are most useful. Give the student the general rules, and let him build up the different walls with the models and then sketch in his notebook the result—a much better method than the usual free-arm sketches on the blackboard, which often become rather inaccurate.

Plenty of samples of materials and visits of inspection to buildings in course of erection, brick and timber yards, joinery mills, iron and lead works, etc., will be found a means of preventing stagnation, facilities for such visits being as a rule willingly given by the architects and manufacturers.

All details should as far as practicable be illustrated by photographs or lantern slides, and the students told where they can see a certain method of finishing any particular piece of work. Paper models made quickly in class will often elucidate any small difficulty, such as a roof plan with hips, valleys, and gables. In my opinion, neither models nor lantern slides are used enough for this subject.

I have taken parties of my students on two occasions to London, where we visited such buildings as the Wesleyan Hall, Royal Automobile Club, Opera House (Kingsway), Regent Street Polytechnic, Messrs. Doulton's Potteries, and the Building Trades Exhibition. On each occasion I had about twenty-five students. In some cases they lost a day's work to go, in addition to paying their own expenses.

In conclusion, I consider that the teachers do the best they can with the time and materials at their disposal, and that they are not so responsible for the "unlimited reproductions of the bay windows and front doors" as the increasing use of machinery and the modern craze for cheapness.

K. H. READ,

Lecturer in Building Construction, Gloucester and Stroud Technical Schools.

[The point we wished to make was not that the text-books or the instructors gave bad constructional

details to their students, but that the architectural forms used were generally those which a self-respecting architect would avoid in his own practice, and that the only safe method was to employ such standard details as time and the general consensus of educated opinion had established. The number of students attending technical classes throughout the country was given to us by a gentleman in Mr. Read's position.—EDS. A. AND B. J.]

#### *To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.*

SIRS,—Teachers of building construction as a whole will, I think, be obliged to you for your able article on the above subject. As yet it has not received much criticism, no doubt because adverse criticism and ideas are not forthcoming.

With one statement only, I think, could fault be found, and that is the statement that architects—as such—are the best class from which to draw inspectors. Theoretically, perhaps, this is so, but I would suggest that the best men to teach or inspect are "constructors," and with this idea the department are evidently partly in accord, as they have recommended that preference shall be given to such in appointing teachers.

But why stop at teaching only? The qualifications for an inspector should be primarily technical, and secondly artistic; and I would propose the following qualifications as desirable and necessary: Practical experience in a building trade or trades; experience as a general foreman or clerk of works; City and Guilds certificates in the building trades; at least honours in building construction; long experience as teacher of the subject; and a member of the R.I.B.A. or other association of architects.

Idealistic? Perhaps so, and yet there are teachers who have most, if not all, of these qualifications, and yet have but a slender chance, or none at all, of becoming inspectors.

London, N.

A. W. B.

#### MODERN SMALL HOUSES.

AS the thirteenth example in this series we illustrate "Seaton House," Camberley, erected from the design of Messrs. H. R. and B. A. Poulter, architects, of Camberley. The house is built of brick whitewashed, the roof being tiled.

#### WORKING DRAWINGS BY WELL-KNOWN ARCHITECTS.

IN the spring of 1910 the municipal authorities of Rome offered to Sir Rennell Rodd, the British Ambassador, the site of the British pavilion at the Rome Exhibition for the erection of some national institution. The offer was accepted by the Commissioners of the Exhibition of 1851, who were in need of a site for a building to accommodate the new British School at Rome.

The British Pavilion, a clever adaptation of the upper storey of the west front of St. Paul's Cathedral, was designed originally by Mr. E. L. Lutyens as a temporary exhibition structure. The Committee, however, decided that the design would be suitable for their new building; and it is now being re-erected in permanent materials. We reproduce as a further example in the above series a detail drawing of the end projections, which are to be extended outwards until the façade is 250 ft. in width.



## THE LONDON SOCIETY.

THE first general meeting of the London Society was held at the Mansion House on Monday, January 13th. The Lord Mayor, who occupied the chair, having briefly described the objects of the society, said he believed it would be possible to carry out very great improvements without any additional burden on the rates.

Lord Curzon of Kedleston then moved the following resolution: "That this meeting recognises the importance of the work which the London Society proposes to undertake in furthering the improvement and beautification of London and in arousing the interest of Londoners in their great city, and expresses the hope that public authorities will co-operate with the Society and help to make London a worthy capital of the Empire." Their object, he continued, was to make London beautiful where it was not so already, and to keep it beautiful where it already was. He did not suppose there was, or had ever been, any great city that grew up with less forethought or that rested less definitely on a plan. The capital was really like the British Empire of which it was the head; and both Empire and capital had now reached a point at which they had to take counsel, to take stock of their position, and see what they were to do for the future, because in both cases one of two things must result—either the Empire and the capital would break down from their plethoric condition, from the operation of the numerous centrifugal tendencies that were always at work, or, on the other hand, by counsel, by consideration, by forethought, it might be possible for both Empire and capital city to be created a new unity, to obtain a more commanding influence, to secure to both a future not less wonderful than their past. Perhaps some might think London was beautiful already and that they could afford to let well alone. London was beautiful, but it was beautiful by fits and starts; in nooks and corners, in parks and squares. Nobody contemplating this huge area could say that it was beautiful as a whole. There were plague spots on the skin of London which all should like to see removed, and the London Society was to be the physician who was to give the prescription.

### *The Society and Its Work.*

The Society, therefore, consisted of men and women the first condition of whose union was that they loved London, and the object of their union was to assist by forethought and taste to carry out the objects he had described. It was obvious that a very wide field of work lay before the Society. It was necessary that there should be some co-ordination of existing societies. Perhaps there might be created a single town-planning authority to act for the whole. There might be required some redistribution of funds, some readjustment of local taxation. The committees of the Society would no doubt direct their attention to laying-out streets, to the erection of buildings, to the construction of bridges, to the alignment of roads, and perhaps, also, to the proper placing of statues in London, so melancholy, so pitiful, so unutterably forlorn. Then there was the traffic problem which would confront them and which was a matter of the most urgent importance, and it might well be that before anything substantial could be done the assistance of Parliament and legislation might be required.

Might he say one word of caution to the

members and framers of the Society? He thought that the plans of the Society should not be at all lacking in imagination or idealism, and if they erred at all let them err on the side of ambition. And yet, at the same time, let them bear this in mind: if the proposals that were framed were to be effective they must be business propositions." They must be correlated with the facts and, perhaps, still more, with the figures of the case. The second point on which he would like to utter a word of caution was this: he thought they must be careful to avoid imaginary, impracticable and impossible finance. It was very easy when they were talking about a great city to speak in millions, but it was not good business to do so. He hoped that that consideration would be borne in mind, and that those who framed the plans of that Society would draw up a profit-and-loss side of the account. When the Lord Mayor said there would be no burden on the rates he must have been alluding to the possibility that some of the alterations would be immensely remunerative in themselves. The expenditure would be a most splendid investment. The beautification of London would in many cases treble and quadruple the value of the property dealt with. His own impression was that a good deal of the improvement would be paid for by the increased land values, which it would itself create.

### *A Word to the Sceptics.*

He would like to say a word to the sceptic. There were some who would say: "Is this possible? Are you not living in a land of dreams? Does any man really know London, or anything but a small corner of London? Or does he care about London? Does it mean anything to him?" It was quite a commonplace to say that there was no such thing as a civic spirit in this Metropolis, that a man or woman cared nothing for the street in which he or she was born. London never had been to the Englishman exactly what Paris was to the Frenchman or what Berlin was becoming in an increasing degree to the German. If they met a Frenchman abroad they would find that in his mind "La Belle France" meant as a rule Paris, that wherever he built a town he attempted to reproduce the boulevards, the cafés, and all the gay and sparkling brilliance of that delightful city. But the Englishman did nothing of the sort. The Englishman thought of beautiful country villages, exquisite scenery, and leafy lanes. The last thing he attempted to do anywhere was to reproduce London. His one idea was to get away from it.

It might be asked: Had they much encouragement for their ideas in the history of the past? It was within his own recollection that the City of London was willing to part with its ancient historic portal, Temple Bar. He remembered in more recent times that Crosby Hall, the place where Richard of Gloucester lived, where Shakespeare stood, where More wrote, was taken down stone by stone. And if they saw what was going on in different parts of London it seemed almost incredible that in a great modern cultured, civilised city such horrible phantasmagoria as a certain block of flats should ever have been allowed to rear its hideous head in the air. But things were changing rapidly. There was a growing interest in the fortunes of London. There were many people in London to whom he thought this old city was a soul and a spirit, and had even a

voice of its own. He did not think that London spoke to all with the same voice. It was a city of many voices, but there were few who were not moved by the thought of the mention of London. At any rate to him London spoke in a very clear and definite voice indeed. The London which he cared for was the London of the past, and the reason why he was so interested in that Society was not simply because it was going to prevent mistakes in the future, but because it was going to arrest the mistakes that had been made in the past, and to keep for them that priceless possession which London had in the monuments and antiquities of the city. When he went down Whitehall he always imagined the courtly figure of Charles I. walking to his fate. As he went on he took no notice of the beautiful buildings which were being erected on either side, but he thought rather of Holbein's Gateway, taken down at a time when the London Society did not exist, for the making of Parliament Street. In Palace Yard he cared nothing for the pigeons and the taxicabs, but he thought rather of the tournaments that took place there and its memories of Guy Fawkes and Sir Walter Raleigh. Besides that London of the past there were other Londons. There was the London of business and finance, the London of industry and manufacture, the London of shipping and the docks, the London of society and amusement, the London of art. There was, too, the London of Government, which kept its finger on the pulse of all that was passing in the world, and there was also the London of the submerged millions, that mysterious, unknown, inscrutable London which always baffled and bewildered. All these Londons awakened an echo which, he thought, the Society should be able to answer.

### *London in the Future.*

Speaking of the future, Lord Curzon said that each of us was justified in having his own particular fancy. His dream looked to the south of the river. On the north side he would keep the buildings and streets and squares as they were now, but on the south side he would make a clean sweep and would have a large conception. He would like to see a new city grow up on the south side of the Thames, in which great streets would be opened up and gloomy tenements swept away, in which light and air and beauty should be let in to these dark places. And if these places might thus become again beautiful and accessible they might also revive the life of the Thames. They ought, then, to regard London as a great trust which they should safeguard and save from sacrilege and spoliation in the future, and they should see that its development proceeded upon gracious and orderly and artistic lines.

The Earl of Plymouth, seconding the resolution, said the question might be asked: "Was the Society attempting to do too much?" It depended, he thought, upon the support they received. They could not do without the support of public authorities or of private individuals. Party politics, he assured them, should not be allowed to interfere in the slightest degree with the policy which they had set themselves to carry out.

Sir Aston Webb, proposing a vote of thanks to the Lord Mayor, said it was no small thing that they should have the Chief Magistrate in the chair at the first general



meeting of the London Society. It proved that Londoners were showing a greater interest in their city than they had done in the past. The great aim of the London Society was to interest Londoners in London. Although that seemed quite simple, some people had managed to misunderstand it. Many people seemed to think that London was so dirty, dark, and dreary that it was hopeless to try and make it beautiful, and that if they could keep the sewers right, and succeed in escaping the taxis while crossing the streets, that was all that could be expected. But the London Society could keep before the people the possibilities which they believed were dormant in London at the present time. It was said that the Society was formed of dreamers. They objected to that title, but at the same time somebody had to dream, and with sufficient enthusiasm they would see their dreams come true. One of these dreams was the embanking of the southern side of the Thames. If that embankment were to extend from Westminster Bridge to Southwark Cathedral the Thames would be the noblest river running through the centre of any capital city. Then they would like to see a great thoroughfare from the southern end of Westminster Bridge joining the southern end of London Bridge, and they believed that that dream would prove a remunerative business transaction. They would also like to see the two iron bridges at Charing Cross and Cannon Street replaced by stone ones, and the great railway termini brought together with underground lines going out of London, thus permitting the transformation of the existing tracks into great boulevards. Another need was that there should be some authority with power to lay down definitely the main roads running out of London into the various suburbs and connecting with the other main roads in the county. To-day London was being besieged by fifteen town-planning schemes, and if these schemes were laid down before some definite scheme for a road system was decided upon London would be in a worse condition than before. Of course, they required certain funds to carry on the work of the Society. Mr. F. D. Smith had promised £50 if nine other gentlemen gave a similar sum. He hoped that many more would join the Society and give their support, so that they (the Society) might know they were speaking with a large number of citizens behind their back.

Captain Jessel, M.P., having seconded the vote of thanks,

The Lord Mayor, in reply, said the power of the society was strictly limited to the extent of its funds. They could all become members by paying a subscription of £1 1s. per year.

#### PROPOSED IMPROVEMENTS FOR NORWICH CATHEDRAL.

The Dean of Norwich (Dr. Beeching), in enumerating the needs of his cathedral, says: "For the choir services we want a lectern with two desks like the beautiful one in King's College Chapel at Cambridge. Occasions are always arising, as on Christmas Day, when it is impossible to read the lessons from the Authorised Version because of some mistranslation. It is therefore a great convenience, and almost a necessity, for the reader to have both the old and revised versions at hand; and this is impossible with a lectern of the ordinary type. The lectern at present

in use is a fifteenth-century pelican of excellent workmanship, which would find a still more honoured place in the sanctuary, and carry the Book of Gospels. Of works on the grand scale the one that cries most loudly for accomplishment is the restoration of the stone steps leading up to the Founder's episcopal throne—a feature of our cathedral which is unique on this side of the Alps—with the seats on either side for the clergy. At present there is only a flight of wooden steps improvised for the use of Archbishop Benson when he came to reopen the cathedral after the repairs carried out by Dean Lefroy, and concluded by giving the Benediction from the ancient throne. The broken throne itself it might be unwise to restore. It would be sufficient to fit it with a wooden seat, so that it could be used on occasions of special solemnity. Our cathedral is so magnificent in all its parts, and the architecture of the presbytery and the apse is so especially noble and dignified, that anything unworthy in furniture and ornament strikes the eye at once with a painful sense of incongruity."

## COMPETITIONS.

### *School, Cambuslang.*

The awards in this competition have been announced as follows: 1, Mr. John Fairweather, A.R.I.B.A.; 2, Messrs. H. and O. Barclay; 3, Mr. G. D. Copland; 4, Messrs. Malcolm Ross and Sons, Wishaw. The first three are all of Glasgow.

### *University, Vancouver.*

The awards in the competition for a series of buildings and lay-out for the University of Columbia, Vancouver, are announced as follows: 1 (\$4,000), Messrs. Sharpe and Thomson, Vancouver; 2 (\$3,000), Mr. D. Scott Bow, Vancouver; 3 (\$2,000), Messrs. P. T. Turner and Partners, Montreal; 4 (\$1,000), Messrs. Symons and Rae, Toronto. The competition was limited to architects practising in Canada, and only nineteen sets of designs were submitted, and of these seven were disqualified. The jury of assessors included, as representing the architectural profession, Mr. W. D. Caröe, F.R.I.B.A., of London, Mr. A. A. Cox of Vancouver, and Mr. S. Maclure of Victoria, B.C.

### LIST OF COMPETITIONS OPEN.

JANUARY 31.—MUNICIPAL BUILDINGS, JAMAICA.—For an open competition, in which a premium of £100 is offered for the design of municipal buildings to cost £9,000, particulars, price 2s., may be obtained from Messrs. Young, Ltd., 60, Fenchurch Street, E.C.

JANUARY 31.—HOUSING SCHEME, HEMEL HEMPSTEAD.—Premium, £20. Particulars (£1 1s.), Town Clerk, Hemel Hempstead.

FEBRUARY 3.—COUNCIL SCHOOL, HARROGATE.—The Borough of Harrogate Education Committee invite designs for an elementary school for 675 children. Particulars, C. E. Rivers, A.M.I.C.E., Borough Engineer, Harrogate.

FEBRUARY 8.—MUNICIPAL BUILDINGS, DUBLIN.—Restricted to practitioners in Ireland. Cost, £55,000. Author of selected design to supervise work. Second premium, £150; third, £100. Assessor, Mr. Albert H. Murray, F.R.I.B.A. [The time has been extended from that originally announced.]

FEBRUARY 22.—TRAINING COLLEGE, GLASGOW.—Limited to six selected architects.

FEBRUARY 26.—DECORATIVE FIGURE COMPOSITIONS.—The Academy of Fine Arts, Bristol, invite competitive sketch designs for painted decorative figure compositions to fill four segmental lunettes under the dome. The selected artist to receive £500 for the work. Assessors, Messrs. Beresford Pite, W. R. Lethaby, and Gerald Moira. Sections to be seen at the office of the architect, Mr. S. S. Reay, F.R.I.B.A., 47, Milsom Street, Bath. Designs to be sent to Professor Beresford Pite, F.R.I.B.A., Royal College of Art, South Kensington, S.W.

MARCH 1.—MUNICIPAL BUILDINGS, RANGOON.—The Committee of the Municipality of Rangoon, Burma, invite architects to a competition for the designing and supervising of new municipal buildings. Premiums, £300, £200, and £100. Supervision may be delegated to a local firm of architects. Particulars £1, returnable from the London agents, Messrs. Ogilvy, Gillanders, and Co., Sun Court, 67, Cornhill, E.C.

MARCH 1.—CITY HALL, WINNIPEG.—Limited to British Architects in Canada. Assessor, Mr. Leonard Stokes, F.R.I.B.A.

MARCH 1.—ROYAL PALACE AND LAW COURTS, SOFIA.—Particulars of this competition are obtainable from the Commercial Intelligence Department, Board of Trade, Basinghall Street, E.C.

NO DATE.—KURSAAL, FOLKESTONE.—Cost not to exceed £29,000. Premiums, 100, 50, and 25 guineas; premiums of accepted design to merge in fees. Apply to Town Clerk, Folkestone.

## OUR EDITION DE LUXE.

The number of remaining copies of our Edition de Luxe, which was published at the end of December, is being reduced day by day, and it will not be long before the entire stock is exhausted. The special feature of the issue—a series of forty plates of domestic interior details by well-known architects—has been found to be of great practical value, and the Publisher (at Caxton House, Westminster) is constantly receiving fresh orders from readers who have just seen the issue and have sent at once for a copy. The price is 1s. (postage ½d.).

In the descriptive particulars of the Glamorgan County Hall, Cardiff, illustrated in the issue, it was stated that the strong-room doors were supplied by Messrs. Chatwood and Sons; the correct title of the firm, however, is—The Chatwood Safe Co., Ltd., of Bolton.

In connection with the description of the Wesleyan Hall, it may be pointed out that Messrs. J. W. Singer and Sons, Ltd., of Frome, in addition to having executed the electric-light fittings in the main hall and other parts of the building, also made the wrought-iron and bronze railing to the grand staircase.

Among the illustrations of recent works in the concrete and steel section of the Edition de Luxe was one of the new abattoirs for the Corporation of Edinburgh (for which Expanded Steel was used). This was incorrectly ascribed to Mr. G. Morham, engineer; the building was designed by and carried out under the superintendence of Mr. J. A. Williamson, A.R.I.B.A., City Architect.



## R.I.B.A. EXAMINATION RESULTS.

*Preliminary.*

The Preliminary Examination, qualifying for registration as Probationer R.I.B.A., was held in London and the undermentioned provincial cities on November 25th and 26th. Forty-five candidates were exempted and ninety-four were examined, with the following results:

Centre.	Number Examined.	Passed.	Relegated.
London	39	18	21
Birmingham	8	7	1
Bristol	6	6	0
Cardiff	7	3	4
Leeds	12	10	2
Liverpool	4	2	2
Manchester	11	10	1
Newcastle	7	5	2
	94	61	33

The passed and exempted candidates, making a total of 106, are as follows:

Aitken, J. H., Farnham Royal, Bucks.  
 Allcom, W. J., Westminster.  
 Anderson, D., Rochester.  
 Andrews, L. MacD., Preston, Brighton.  
 Ashworth, J., Bacup, Lancs.  
 Athron, T. S., Bridlington.  
 Atkinson, E., Doncaster.  
 Bell, E. A., Leeds.  
 Bridgman, G. S., Paignton.  
 Bowman, W. H., Pendleton, Manchester.  
 Brown, R., Joppa, Edinburgh.  
 Callender, G. W., London, E.C.  
 Cavanagh, L. F., London, E.  
 Chadwick, H. L., Warwick.  
 Chambers, J. F., Goole, Yorks.  
 Clark, R. J. B., Penzance.  
 Clayton, G. R., Blackburn.  
 Cloke, C. J., Brondesbury, N.W.  
 Cole, E. R. F., Kirkdale, Liverpool.  
 Cule, D. M., Cardiff.  
 Dawson, W. Tilehurst, nr. Reading.  
 Day, N. F. C., Havestock Hill, N.W.  
 Dickeson, C. A., Forest Gate, E.  
 Dotts, A. L., Liverpool.  
 Doyle, E. L., Manchester.  
 Drew, J., London, S.W.  
 Drury, J. C., Chapel Allerton, Leeds.  
 Dyson, E. V., Headingley, Leeds.  
 Evans, D., Meifod, nr. Welshpool.  
 Evans, H. G., Carmarthen.  
 Evans, M., Kensington, Liverpool.  
 Fitkin, B. T., Weston Turville, Tring.  
 Fitton, R. A., Middleton, Lancs.  
 Foster, L., Headingley, Leeds.  
 Fyfe, J. S., Ecclesall, Sheffield.  
 Gausson, W. A., Fleetwood, Lancs.  
 George, G. W. H., Swindon.  
 George, T., Swindon.  
 Gibson, W. E., Jarrow-on-Tyne.  
 Hall, A. L., Edgbaston, Hampshire, T. R., Bowes Park, N.  
 Hardington, H. B., Hugglescote, nr. Leicester.  
 Harker, A. New Moston, Manchester.  
 Harper, E. A., Moseley, Birmingham.  
 Harper, J. C., Moseley, Birmingham.  
 Harvey, G. H. L., Nun-eaton.  
 Henderson, E. E. J., Plymouth.  
 Hendry, M., Aberdeen.  
 Hickson, C., Huddersfield.  
 Horton, W. J., Werrington, nr. Peterborough.  
 Hossack, J. D., Pretoria, South Africa.  
 Irvin, J. H., Walton-on-Thames.  
 Jennings, G. S., Moseley, Birmingham.  
 Johns, J. A., Sheffield.  
 Jones, A. D., Bangor.  
 Jopling, A. B. B., Hull.  
 Karle, J. B., Bridgend, Glam.  
 Keep, N. P., Wandsworth Common, S.W.  
 Kendall, M. H. V., Bristol.  
 King, C. E., Ealing.  
 Lewis, H. M., Pontypriid.  
 Lewis, W. G., Cardiff.  
 Lindop, F., Todmorden.  
 Lumb, J. H., Heworth, York.  
 Mann, W. R. J., Sunderland.  
 Mansfield, R. E., Leigh-on-Sea.  
 Marshall, J., jun., South Croynod.  
 Milne, F., Rochdale.  
 Morrison, J. W. P., Cairo.  
 Morton, E. H. D., Dundee.  
 Murgatroyd, J. L., Pinner.  
 Musmann, E. P. B., Hampstead, N. W.  
 Oatley, M. J., Hornsey, N.  
 Ogden, J. C. B., Port Talbot.  
 Paice, C. L., Cromer.  
 Pick, H. S., Leicester.  
 Pierce, S. R., St. Leonards-on-Sea.  
 Pimm, F. W. C., Torquay.  
 Pite, I. B., Regent's Park, N.W.  
 Quinn, C. D., Manchester.  
 Ramsden, E. A., Leeds.  
 Rees, D. J., Pontygwaith, Glam.  
 Roberts, O. H., Boscombe.  
 Roberts, E. W., Swansea.  
 Rowntree, T. H., Newlands, Middlebro'.  
 Sexton, G. W. F., Brondesbury Park, N.W.  
 Shrewsbury, R. H., Eccles, Manchester.  
 Shurmur, S. E., Walthamstow.  
 Simpson, W., jun., Ryhope, Sunderland.  
 Smith, H., Nelson.  
 Snell, A., Liskeard.  
 Soper, C. E., Willesden, N.W.  
 Stephens, H. S., Finchley, N.  
 Trotter, A., London, W.  
 Tubbs, G. B., London, E.C.  
 Usher, W. A., Carlisle.  
 Wallis, C., Roundhay, Leeds.  
 Webster, F. O., Forest Gate, E.

Weston, West Bridgeford, Nottingham.  
 Whitehouse, C. N., Edgbaston.  
 Whiteley, F. D., Eiland.  
 Whitwham, H. H., Bingley.  
 Williams, E., Splott, Cardiff.  
 Williams, L. S., Newport, Mon.  
 Wilson, S., Newcastle-on-Tyne.  
 Windle, F., Chesterfield.

*Intermediate.*

The Intermediate Examination, qualifying for registration as Student R.I.B.A., was held in London and the undermentioned provincial cities from November 22nd to 29th. Ninety-three candidates were examined, with the following results:

Centre.	Number Examined.	Passed.	Relegated.
London	58	36	22
Bristol	2	1	1
Cardiff	2	2	0
Glasgow	4	4	0
Leeds	7	3	4
Liverpool	4	2	2
Manchester	12	5	7
Newcastle	4	3	1
	93	56	37

The passed candidates are as follows, the names being given in order of merit:

Francis, G. E., Sydenham, S.E.  
 Stainsby, G. P., Stockton-on-Tees.  
 Bain, G., Clapham Common, S.W.  
 Lancaster, C., Newcastle-on-Tyne.  
 Gutteridge, R. H., Forest Gate, E.  
 Hale, P. E., Dalston, N.E.  
 Andrew, H., Hull.  
 Vinden, G., Reading.  
 Cheek, C. C., Wandsworth Common, S.W.  
 Peermahomed, A. B., Kilburn, N.W.  
 Moore, J., Beighton, nr. Sheffield.  
 Robinson, N. S., Canfield Gardens, N.W.  
 Bates, C. F., Newport, Mon.  
 Doddington, W., Brockley, S.E.  
 Davies, H. F., Chester.  
 Cooper, J. G., Willesden Green, N.W.  
 Head, G. L., Cricklewood, N.W.  
 Brueton, B. F., Bridge-water.  
 Waller, T. J., Durham.  
 Moss, D. J., Peckham Rye, S.E.  
 Aldous, C. F., Putney, S.W.  
 Thomas, D. R., Llandilo.  
 Mackenzie, G. M., Westminster.  
 Ackroyd, S. W., Halifax.  
 Adams, W. A. C., West Kensington.  
 Ashenden, H. C., Canterbury.  
 Bagenal, P. H. E., Chelsea, S.W.  
 Brewill, L. C., Nottingham.  
 Bull, J. W., Green Lanes, N.  
 Butcher, A. J., Westonsuper-Mare.  
 Caldwell, O. R., Penzance.  
 Chandler, A., jun., Bedford.  
 Cooksey, H. T., Islington, N.  
 Currie, J. K., Aberdeenshire.  
 Eiloart, R. E., London, N.W.  
 Evans, T. C., Fulham, S.W.  
 Goodsall, R. H., Tankerton-on-Sea, Kent.  
 Grant, J. D., Drumna-drochit, Inverness-shire.  
 Hill, G. W., Leeds.  
 Howe, J. L., Northwood, Middlesex.  
 Hudson, T., Bolton.  
 Kay, M. C., West Ferry, Scotland.  
 Leighton, H. B., Meersbrook, Sheffield.  
 Luyken, H. M., Wood Green, N.  
 Mackey, S. A., Warrington.  
 Meredith, E., Earl's Court, S.W.  
 Mortimer, A. L., Sef-ton Park, Liverpool.  
 Nathanielsz, J. J., Glasgow.  
 Phillips, A. W., Swansea.  
 Portsmouth, O. S., Swansea.  
 Robinson, J. J., Donnybrook, Dublin.  
 Seabrook, S. B., Ipswich.  
 Slater, M. J., Ipswich.  
 Watt, J. D., Westcliff-on-Sea.  
 Wilson, J. F., Newport, Mon.  
 Wynne, T. S., Northop, Flint.

The number of failures in each subject of the Intermediate Examination was as follows:

A. Principal Styles and General History of Architecture	18
B. 1. Simple Applied Construction	21
B. 2. Theoretical Construction	26
C. 1. Historical Architecture:—	
(a) Greek and Roman	11
(b) Byzantine and Romanesque	1
(c) French and English Gothic	2
(d) Italian, French, and English Renaissance	3
C. 2. Mathematics and Mechanics	2
C. 3. Design	11

*Exemptions from the Intermediate.*

The following Probationers possessing the certificates required under the regulations were exempted from the Intermediate Examination, and have been registered as Students, viz.:

Hudson, F. E., Edmonton, Canada; and Streatham. [Two years' course, University of London, King's College.]  
 Mackellar, R. N. H., Glasgow. [Diploma, Glasgow School of Architecture.]

Musmann, E. P. B., Hampstead, N.W. [Three years' course, University of London, University College.]  
 Spooner, F. P., London, N. W. [Architectural Association Four Years' Course.]  
 Atalla, M. A., Strand, W.C. [Two years' course, University of London, King's College.]

*Final and Special.*

The Final and Special Examinations qualifying for candidature as Associate R.I.B.A. were held in London from December 5th to 13th. Of the ninety-eight candidates examined forty-four passed and the remaining fifty-four were relegated. The passed candidates are as follow:

Allen-Lodge, A. R., Milburn, S. W., Sunderland.  
 (Special), Strand, W.C.  
 Murray, C. H., Eastbourne.  
 Andrews, P. M., Newton, W. G., London, W.  
 Barrow, J. W., Morecambe.  
 Blenkinsopp, H. J., Phillips, R., Parsons Green, S.W.  
 Brewerton, F. A., Manchester, S.W.  
 Bucknell, L. H., West Hampstead, N.W.  
 Butler, A. S. G., Kensington, W.  
 Chisholm, D. J., Bedford Park, W.  
 Cole, L. E., London, N.W.  
 Cope, G. A., Highgate, N.  
 Cowley, H. R. (Special), Southend-on-Sea.  
 Dewhurst, R. H., Harrogate.  
 Foster, T. O., London, S.W.  
 Gibson, E. H., Highgate, N.  
 Gold, H. A., Dunton Green, nr. Sevenoaks.  
 Gordon, C. B. (Special), Highbury New Park, N.  
 Hinton, J. G., Winchester.  
 Houston, W. W., Belfast.  
 Martyn, L. D., Stockwell, S.W.  
 Meadows, S. D., East Ham, E.  
 Moore, H. E., Rugby.  
 Milburn, S. W., Sunderland.  
 Murray, C. H., Eastbourne.  
 Newton, W. G., London, W.  
 Pease, A., Worthing.  
 Phillips, R., Parsons Green, S.W.  
 Pigott, R. M., Wandsworth Common, S.W.  
 Rahbula, E. A. E., Barnes, S.W.  
 Reid, C. B., London, W.  
 Roberts, T. L. (Special), Sunningdale, Berks.  
 Scott, H. S. (Special), Bromsgrove.  
 Solomon, H., Shrewsbury.  
 Stenner, W. J., Bristol.  
 Sullivan, B. M. (Special), Wimbledon, S.W.  
 Sutherland-Graeme, A. V., Hampstead.  
 Thoms, W. G., Nottingham.  
 Waghorn, S. S., Charing Cross, S.W.  
 Walgate, C. P., South Kensington, S.W.  
 Walker, T. (Special), Derby.  
 Weedon, H. W. (Special), Birmingham.  
 Wilby, A., Hampstead, N.W.  
 Williams, D. (Special), Salisbury.  
 Williams, S. H., Sheffield.  
 Weinberg, J., Hyde Park, W.

The number of failures in the various subjects of the Final and Special Examinations was as follows:

A. Design	42
B. Construction	45
C. Hygiene	35
D. The Properties and Uses of Building Materials	14
E. The Ordinary Practice of Architecture	16
F. Thesis	16

*Fellows.*

At the fifth general meeting (business) of the Session 1912-1913 of the R.I.B.A., held Monday, January 6th, Mr. Reginald Blomfield, A.R.A., president, in the chair, the following candidates were elected as Fellows under By-law 10:

Herbert A. Hall. Septimus Warwick.  
 C. Wontner Smith. H. W. Wills.

*The R.I.B.A. and the New Year Honours List.*

At the business meeting of the R.I.B.A., held on January 6th, Professor Reginald Blomfield, A.R.A., the president, brought forward a motion, which was carried by acclamation, that the congratulations of the Institute be tendered to Sir Thomas Graham Jackson, R.A., Royal Gold Medallist, on the baronetcy recently conferred upon him; and Mr. William Woodward paid a tribute to the merits of Sir Herbert Bartlett (of the firm of Messrs. Perry and Co., building contractors), upon whom a similar honour has been bestowed.



## IN PARLIAMENT.

(By Our Press Gallery Representative.)

*School of Architectural Design.*

In the House of Commons Mr. King asked the President of the Board of Education whether his attention had been given to the movement supported by many British architects to establish in London a school of architectural design similar to the Ecole des Beaux-Arts in Paris, and to the statement by Mr. E. L. Lutyens, a member of the Delhi Town-planning Committee, and other artists, that such a school was essential to placing architecture in Great Britain on a sound theoretical basis; whether he had been approached with regard to this proposal for teaching architecture; and whether he proposed to support this scheme by a grant or otherwise.

Mr. Joseph Pease said he had seen a newspaper report giving an outline of the scheme referred to. He had not been approached on the matter. He could not say, therefore, whether the schools established under such a scheme would or would not be available for grant.

*The New Capital of India.*

Mr. King, having asked what previous experience in India had been enjoyed by the three members of the Delhi Town-planning Committee, Mr. Harold Baker, on behalf of the India Office, stated that Captain Swinton had served some years in India. The two other members of the committee had not visited India before.

Mr. King asked whether there were any experts acquainted with Indian building conditions in any other departments than the Public Works Department who were qualified to advise upon the technical matters arising out of the plans for the new Delhi, and if so whether they would be consulted.

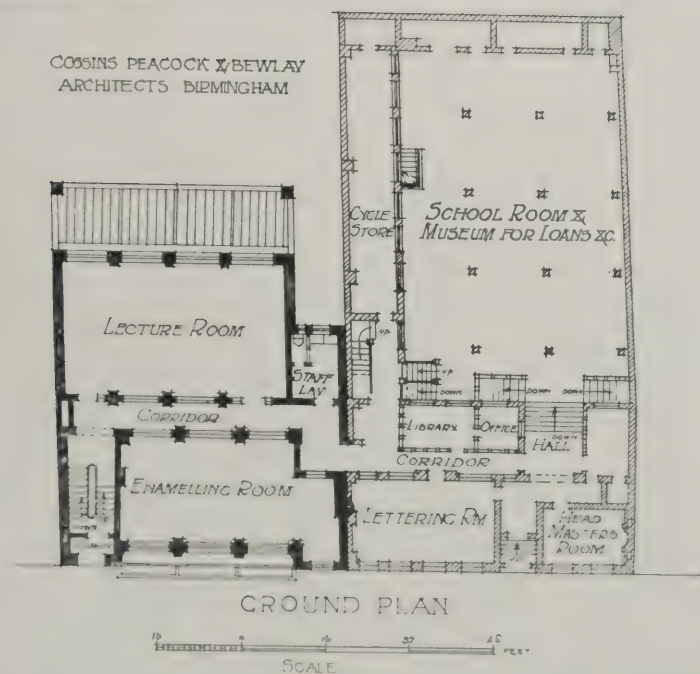
Mr. Baker replied that no doubt there were in India, as elsewhere, professional builders and architects outside the Public Works Department of varying degrees of skill and experience. The Indian Government was not likely to be ignorant of their existence, nor to refrain from consulting them on any matter respecting which their acquaintance with local building conditions would be valuable.

Mr. King asked whether the Public Works Department in India had been strengthened in recent years by the appointment of professional architects in order that the Government of India might be advised in all matters relating to architecture by experts with a full knowledge of Indian conditions.

Mr. Baker replied that within the last ten years the Public Works Department in India had been enabled to deal more adequately with designs for public buildings by the appointment of consulting architects. One such appointment was attached to the Central Government, and five to Provincial Governments.

Mr. King asked whether, before or after the appointment of the Delhi Town-planning Committee, there were transferred from the Public Works Department to another department of the Government of India all matters referring to the laying out and designs of the new Delhi, and if so what reasons for this course could be stated.

Mr. Baker said that matters connected with the erection of the new capital, including the acquisition and laying out of the site, had from the first been dealt with in the Home Department of the Government of India. It was the appointed de-

COSSINS PEACOCK & BEWLAY  
ARCHITECTS BIRMINGHAM

GROUND PLAN

SCALE

## MUNICIPAL SCHOOL FOR JEWELLERS AND SILVERSMITHS, BIRMINGHAM.

This building is an extension of the Vittoria Street School of Art, a branch school which is specially set apart for the training of jewellers and silversmiths. The treatment throughout is extremely simple. Externally the walls are faced with thin Black Country bricks set in white mortar, with grey Empire stone dressings; internally the rooms have glazed brick dadoes, with struck brick over, finished white. The cost of building and equipment was about £3,000. The builders were Messrs. Dallow and Sons, of Blackheath, and the architects Messrs. Cossins, Peacock and Bewlay, of Birmingham.



partment for dealing with questions which turned mainly on considerations of public policy and general administration.

#### *Building Trades Statistics.*

Mr. Buxton, replying to Mr. Royds, stated that there were no annual records of the number of persons employed in the building trades, and the latest available statistics were those derived from the results of the census of 1901. These showed that in that year the numbers of persons occupied in the building trades and works of construction were: England and Wales, 1,043,000; Scotland, 137,000; Ireland, 60,000—total, 1,240,000. The figures included employers as well as workpeople. The figures based on the census of 1911 had not yet been published.

### SOCIETIES AND INSTITUTIONS.

#### LEICESTER SOCIETY OF ARCHITECTS.

##### *Mr. A. H. Hind's Presidential Address.*

The 1913 meetings of the Leicester and Leicestershire Society of Architects opened at the Society's Rooms in St. Martin's last week, when the president, Mr. A. H. Hind, F.R.I.B.A., delivered his inaugural address. Referring to the practice of the employment of unqualified men in designing buildings, principally of a domestic and utilitarian class, Mr. Hind said that registration would possibly supply the solution to the difficulty, by giving the public that sense of security which they could rightly demand. Public interest appeared to be awakening in matters architectural. The garden city movement was responsible for further interest, and occasionally the profession figured in the honours list. They should foster this public interest as much as possible. The study of a subject of such universal interest as architecture should form part of the education of their children. He was pleased to know that this subject formed part of the curriculum in certain secondary schools. Mr. Hind mentioned the proposal to construct a tramway tunnel within the vicinity of St. Paul's Cathedral, and said this was a matter upon which they, as provincial men, had the keenest interest. That a public body (the London County Council) should entertain any project, in which the stability of the finest building in London was endangered, was past the understanding of man. It was to be hoped that common sense would prevail, and that public opinion would prove too strong for a great national treasure like St. Paul's to run the slightest risk of collapse, for a mere tramway tunnel. St. Paul's was too grand a treasure, both historically and architecturally, for such a scheme to receive the slightest consideration.

After reviewing what had been done locally during the past year, the president expressed the hope that some day Leicester would emulate Cardiff, and come to the conclusion that a public park, with plenty of space, was the proper setting for its civic buildings.

#### THE CONCRETE INSTITUTE.

The following were elected members of the Concrete Institute: Percival M. Cooper (Kingston, Jamaica), W. W. Dearle (London), J. V. Haskell (Wellington, N.Z.), Frank Hill (London), F. W. Hingston (London), Andrew Little (Manchester), W. A. Mackay (London), Charles Newson (London), P. V. Manickam Naicker (Madras), R. Vittal Ban (Deccan), Captain A. J. Savage (Woolwich).

The total membership of the Institute is now 955. When the membership reaches 1,000 an entrance fee, at present not required, will be imposed.

#### BIRMINGHAM ARCHITECTURAL ASSOCIATION.

##### *Eighteenth Century Architecture.*

At a meeting of the Birmingham Architectural Association, held in the Exchange Buildings last week, Mr. Salwey Nichol presiding, a lecture on "Eighteenth Century Architecture" was delivered by Mr. Mitchell Withers, president of the Sheffield Architectural Association. The lecturer dealt chiefly with the work of Sir John Vanbrugh, Sir Nicholas Hawksmoor, and James Gibbs, and said that during the period under notice, from 1700 to 1750, in addition to Sir Christopher Wren and other architects, many carpenters and masons associated themselves with the art, showing that interest in it was very general.

#### MIDLAND FEDERATION OF MASTER BUILDERS.

The annual meeting of the Midland Centre of the National Federation of Building Trades Employers of Great Britain and Ireland was held at the Imperial Hotel, Birmingham, last week.

The annual report stated that the building trade in the centre during the past year undoubtedly shared to some extent in the general improvement in the other industries of the country. Whilst, however, the volume of business had increased, there had not been a corresponding improvement in the prices which builders had been able to obtain for their work. Last year had witnessed an advance in the cost of labour and materials, but competition had been as keen as ever, and builders had had to be satisfied with comparatively small profits on their contracts. The improvement in trade had been accompanied by demands on the part of the workmen for higher wages, and advances had been granted in an exceptionally large number of towns, including Birmingham, Coventry, Derby, Leamington, Loughborough, Nottingham, Northampton, Redditch, and Sutton Coldfield. Fortunately, these changes had

been effected in a peaceable manner, mainly through the agency of the various Conciliation Boards.

The report was approved, and the officers for 1913 were appointed, with Mr. W. Yates (Leicester), president.

#### CARPENTERS' COMPANY'S LECTURES.

As in former years, the Worshipful Company of Carpenters have arranged a series of free lectures on the arts connected with building, delivered at their Hall in London Wall at 7.45 p.m. on Wednesday. The first lecture was given on January 8th, when Sir Alfred East read a paper on "The Value of Colour to the Crafts." On Wednesday last Mr. Herbert Batsford gave an interesting lecture (illustrated by a large number of lantern slides) on "Craftsmanship in London as I Have Seen It." The other lectures are as follows:

January 22.—Mr. Alfred Drury, A.R.A., on "A Demonstration in Modelling."  
January 29.—Mr. J. M. W. Halley on "The Craftsmen of St. Paul's."  
February 5.—Mr. Walter H. Godfrey on "The Practical Value of Historical Study to Modern Craftsmanship."  
February 12.—Mr. W. Bainbridge Reynolds on "Metal Work."  
February 19.—Mr. H. J. L. J. Massé on "The Pewterer's Craft."  
February 26.—Mr. E. W. Tristram on "Ancient English Wall Painting."  
March 5.—Mr. Walter Cave, F.R.I.B.A., on "Cottages."  
March 12.—Professor Selwyn Image on "Pictorial Art as Applied to Buildings."

#### OLD HOUSES AT LAVENHAM.

By courtesy of the Editor of the "East Anglian Daily Times" we are able to reproduce a photograph of some old houses at Lavenham, in Suffolk, one of which is being taken to pieces and carted to a distant county, there to be re-erected. Such action is wholly to be condemned. In its new position the house can never be as it appeared originally, if only on account of the plastering, which cannot be done to-



OLD HOUSES AT LAVENHAM, SUFFOLK.



day as it was when the house was built—probably about the middle of the sixteenth century. Lavenham has several fine old half-timber houses, with the Guildhall as chief among them, but their full charm is only to be studied in their own surroundings, and it should not be possible to pull them down and transplant them as in the present instance.

## A CITY ARCHITECT AND SURVEYOR FOR CALCUTTA.

For the post of City Architect and Surveyor of Calcutta—an appointment abolished about five years ago, but which is being revived, it is stated that seventy-six applications were received by the chairman of the corporation (Mr. S. L. Maddox, C.S.I.) when in London recently. In consultation with Sir Brumwell Thomas, F.R.I.B.A., four of the candidates were interviewed by Mr. Maddox, and a candidate selected, subject to his passing a medical examination as to his fitness for service in India; failing the first candidate not passing the examination, a second candidate was chosen on the same conditions. At a special meeting of the Calcutta Corporation it was announced that both selected candidates had failed to satisfy the medical examiner.

It was resolved that Sir Brumwell Thomas be asked to make two selections for the appointment on behalf of the corporation and have these candidates medically examined. It was proposed that all the applications should be sent to Sir Brumwell with the suggestion that a man under forty years of age should be appointed, but during the course of the discussion objection was taken to the age limit, and eventually it was decided to refer all the applications received for the post to the Estates and General Purposes Special Committee for submission of a recommendation to the corporation. The salary attaching to the post is Rs.1,350 per month, inclusive of travelling and other expenses.

## THE NEW OPERA-HOUSE FOR BERLIN.

It is not yet officially known which plan the Emperor has chosen for the new opera-house at Berlin, but it is understood to be that of Herr Brurein, which was one of the five recommended by the technical committee. Its distinguishing feature is that a special floor is inserted between the orchestra stalls and the circle for the use of the Court. If Herr Brurein's plans are chosen, it is a reward for his audacity, as this feature of his plan was not exacted by the stipulations that governed the competition. The point was of some delicacy, and it was this very question that promised to make a second competition necessary. In the first place, the theatre had to satisfy all the demands of the police regulations for personal safety in case of fire, and in the second the Emperor asked for means of communication that should be quite private between the Court box immediately opposite the stage and the boxes at the sides. The architect has solved this rather formidable problem by giving the Court a floor to itself. The opera-house, which has already been the subject of two competitions and narrowly escaped (if, indeed, it has definitely done so) a third, was originally to have been ready for his Majesty's jubilee this year, but, in spite of the energetic intervention of the Emperor, the building cannot be completed within so short a time.

## NEWS ITEMS.

### *Dissolution of Partnership.*

The partnership hitherto existing between Mr. James Fasnacht and Mr. Robt. J. Beale, architects and surveyors, of 17, Old Queen Street, Westminster, has been dissolved, and Mr. Beale will continue to practise at the same address.

### *A People's Theatre for Berlin.*

The municipal authorities of Berlin have granted a mortgage of £100,000 for the construction of a theatre to seat 2,000. It is to be built on a site on the Bülow Platz, between the working-class quarters on the north-east and the central warehouses. It is estimated that the building will cost about £220,000, and that the total outlay will amount to more than £250,000.

### *A Photographic Exhibition.*

At the premises of the Royal Photographic Society of Great Britain, 35, Russell Square, W.C., an exhibition of photographs of topographical, architectural, and picturesque scenes in Portugal and Galicia, by Mr. A. H. Blake, M.A., is now open, free, from eleven till five. The exhibition will close on Saturday, February 22nd.

### *"The Surveyor" Comes of Age.*

In its issue of January 17th, our contemporary "The Surveyor and Municipal and County Engineer" completes twenty-one years of existence, the first number having appeared on January 21st, 1892. The current number is described as a "coming-of-age issue," in which much space is devoted to a most interesting retrospective review possessing considerable value as an historical record—or perhaps "survey" would be a more appropriate word—of the period between "Then and Now, 1892-1913."

### *Carnarvon Castle Restoration.*

Restoration work is being carried on at Carnarvon Castle without interruption, and in the course of the work the foundations of walls within the building have been revealed. Progress is also made with the roofing of the Queen's Tower. Both the lower and upper chambers of this fine tower are to be covered. The outer roof, as well as the floor of the upper tower, will rest on massive oak beams, each weighing close upon four tons, and one of these has just been hoisted into position.

### *Swansea's Search for a Civic Site.*

The question of forming a new civic centre for Swansea has been under discussion by the Swansea Corporation Parliamentary Committee, who are now moving in the matter. The site of the old Town-hall and Law Courts at Swansea is admittedly both out of date and out of place. It was only suitable when Swansea was a small town grouped about the harbour entrance. The Swansea borough surveyor has reported at length on the question, and has himself suggested one or two possible sites, and, in addition, several others have been suggested in the local newspapers.

### *French Historical Monuments.*

The French Commission on Historical Monuments have decided upon the preservation for the public of the forty-eight magnificent arcades in the old cemetery of Orleans and of the "Maison des Trois Nourrices" building, with its interesting Renaissance front, at Narbonne. The Commission regretted to be unable to take steps to save the ruins of the Abbaye de Bonnefont, which have been acquired by a

dealer in antiquities, but an effort will be made to secure for the nation the Roman ruins at Prades, which a foreigner is at present endeavouring to purchase.

### *Rubber Floor for a Church.*

The unusual gift of a rubber floor has been made to the Winchmore Hill Wesleyan Church, Green Lanes. The new floor is patterned in black, buff, brown, and green, harmonising with the colour scheme of the church. It deadens the sound of the heaviest footsteps.

### *The Rebuilding of Regent Street Quadrant.*

Statements have recently appeared in the Press to the effect that the committee, of which the Earl of Plymouth is chairman, appointed by the Lords of H.M. Treasury to consider the design for completing the rebuilding of Regent Street Quadrant have approved a particular design which has been submitted to them. We are officially informed that such statements are quite inaccurate, and that no design has been approved.

### *The Widening of St. Martin's-le-Grand.*

It is now almost certain that the projected improvements in connection with the demolition and rebuilding of the old General Post Office will be carried out. The Office of Works have agreed to sell the necessary land and to provide for the rebuilding of Sweeting's corner, and the London County Council, so far as it can be pledged by its committees, has agreed to the principle of contributing half the cost. Although no figures have been made public, it is understood that the cost of making the widening in St. Martin's-le-Grand will be nearly £200,000, while the corner improvement will cost about £25,000.

### *Mall Memorial to Captain Cook.*

The life-size statue of Captain Cook, upon which Sir Thomas Brock has been engaged for over a year, is now nearly completed, and will shortly be placed on the site offered by the Office of Works on the processional route in the Mall. At present the only memorial of Captain Cook in London is a mural tablet on the house in Mile End-road, where he resided. There is a portrait in the Painted Hall at Greenwich. The statue will be the eighth memorial erected to the memory of the famous Yorkshire mariner. There is an obelisk at Easby Moor, where it is a well-known landmark, and a statue at Hawaii, where Cook was murdered by natives while attempting to regain his boat.

### *New York's Newest Skyscraper.*

A gigantic skyscraper, to be completed in New York by January, 1915, will outrival, as regards size, all other office buildings in the world. The new Equitable building—which is to occupy the site of the old building—which was burnt down last January—will not be as tall as the Woolworth, Singer, or Metropolitan towers, but its office floor area of 1,100,000 square feet will be greater than that of any two skyscrapers put together. According to plans that have been filed with the Building Department, the new Equitable will have thirty-seven storeys in the shape of a huge H, and will be about 500 ft. high. The cost of the ground is said to be £2,700,000, and of the building £2,800,000. There will be forty-four passenger and two freight lifts. The façade of the structure will be constructed of brick, limestone, granite, and terra-cotta in the Italian Renaissance style. One of the most remarkable features will be two brick walls, each



four acres in area, which will extend from the first floor to the thirty-seventh without a single window or other aperture.

### *The Architectural Treatment of Reinforced Concrete.*

In connection with the reinforced concrete classes conducted by Mr. R. Graham Keevil, A.M.I.M.E., M.C.I., a lecture on the above will be given by Professor Lethaby at the Northern Polytechnic Institute, Holloway Road, N., on January 24 at 7.30 p.m.

### *Motor Lorries for Contractors.*

We learn that Mr. Stuart A. Curzon, of 98, Victoria Street, Westminster, has acquired a number of 3 to 4-ton petrol lorries, withdrawn from service by the London General Omnibus Co., Ltd. These lorries, which should be very useful to contractors, include Straker-Squires, Milnes-Daimlers, Wolseleys, Bussings, and De Dions. Terms of disposal may be obtained on application to Mr. Curzon.

## TRADE AND CRAFT.

### *"Ironite" Waterproofing Process.*

A patent waterproofing process for cement, brick, tile, concrete, etc., has been introduced under the trade name of "Ironite" by Messrs. S. Thornely Mott and Vines, Ltd., of 1, Victoria Street, Westminster. "Ironite" is a fine mineral powder, free from oil, paraffin, asphalt or other similar liquid or substance. For the purpose of application the powder is mixed with water to about the consistency of ordinary whitewash, and afterwards spread with a brush. The water will carry the "Ironite" into any porous object, and into any cavities that are capable of penetration by moisture. When thus introduced into voids the "Ironite" particles oxidise, forming a mechanical and a chemical union with the material under treatment. In the process of oxidation the particles of powder expand, completely filling all the voids into which they penetrate.

By this process a new substance is formed—similar in many respects to iron ore. It is not only practically indestructible, but impervious to water, air, heat, cold, oils, acids, alkalis, etc. "Ironite" cannot be removed except by strong mechanical force, and then only by taking with it part of the material to which it has been applied.

The method of application is ordinarily as follows: The surface to be treated is first cleaned of all dust, dirt, and loose particles by means of a brush or broom, and then wetted with water. This operation permits the introduction of the powder into the surface, where it is distributed by capillary attraction.

A perfect bond both of old and new surfaces may be secured by the use of "Ironite." When applied it produces an action similar to vitrification, which prevents injury by frost and adds generally to the strength and durability of the material treated. By the use of "Ironite" a surface of inferior brick or cement may be thoroughly restored and made equal to new. "Ironite" may be substituted for paint on all brick, concrete, and similar work; in which cases it not only waterproofs and preserves, but prevents discolouration by saltpetre and alkali.

The colour of "Ironite" when applied is black, but it soon changes to a reddish brick colour, turning eventually to a shade similar to natural brown stone.

Should a different colour be required, any shade of paint may be satisfactorily applied.

The treatment of surfaces subject to water pressure or wear and tear is a matter for special direction. "Ironite" has been used successfully against very heavy water pressure; and laboratory tests have shown that it cannot be removed by the agency of water, however great the pressure, from any surface to which it has been applied.

"Ironite" has been employed in America for many years past, having been adopted by all the leading architects. A descriptive pamphlet, giving full instructions for the application of "Ironite," together with details of the very successful tests carried out by Mr. Bertram Blount, F.I.C., the eminent consulting chemist, may be obtained upon application to Messrs. Thornely Mott and Vines.

### *Air-ship Sheds.*

Messrs. Hill and Smith, Ltd., of Brierley Hill, who are now just completing an air-ship shed for the War Office at Farnborough, have received instructions to proceed with the erection of a similar shed on the Medway for the Admiralty. The new shed, which consists of steel superstructure covered with galvanised corrugated sheets, will be 550 ft. long, 120 ft. wide, 112 ft. high, fitted with huge sliding doors. These doors alone, including necessary supports and overhead track girder, will weigh approximately 550 tons. The contract includes foundations and erection complete.

## THE 1907 BORING AT ST. PAUL'S.

About the middle of the year 1907, when considerable public anxiety was felt for the safety of St. Paul's Cathedral, some experimental borings were made by Messrs. Duke and Ockenden, Ltd., with the object of ascertaining the precise depth of the water in the subsoil. We reproduce from an instructive little pamphlet issued by Messrs. Duke and Ockenden an illustration showing boring operations in progress on the north side of the cathedral. A special brass "Dando" sand screen was inserted in order to allow the water to flow freely into the borehole and to exclude



TAKING BORINGS AT ST. PAUL'S.

sand. Messrs. Duke and Ockenden reported that after driving the tube on to the London clay, which was reached at a depth of 41 ft., they bored into the clay itself to a depth of 3 ft. Before reaching the London clay the boring went through a stratum of ballast and then 1 ft. of pure yellow clay, which was entirely free from sand. Upon reaching the London clay, the "Dando" sand screen was inserted, resting on the bottom of the borehole. The lining tube was then withdrawn, exposing the screen to the water area. The water level on the date upon which the boring was taken—July 31st, 1907—was ascertained to be 34 ft.

Messrs. Duke and Ockenden also carried out a series of three test borings in the crypt.

### *Home Office Enquiry Concerning St. Paul's.*

A private enquiry is to be made by the Home Office into the possible danger to St. Paul's Cathedral through vibration from motor traffic.

## COMING EVENTS.

Wednesday, January 22.

Manchester Society of Architects.—Mr. L. March Philipps on "The Craftsman and the Architect."

Edinburga Architectural Association.—Mr. Ramsay Traquair, A.R.I.B.A., on "The Gothic Spirit."

Thursday, January 23.

Architectural Association Camera, Sketch and Debate Club.—Mr. L. M. Gotch, A.R.I.B.A., on "The Spirit of the West," at 8 p.m.

Leeds and Yorkshire Architectural Society.—Mr. A. W. Hennings, A.R.I.B.A., on "Old Buildings in Cheshire."

Sheffield Society of Architects and Surveyors (Students' Meeting).—Mr. C. E. Hill on "The Later Renaissance of Cambridge."

Friday, January 24.

Northern Polytechnic.—Professor Lethaby on "The Architectural Treatment of Reinforced Concrete," Holloway-road, N., at 7.30 p.m.

Monday, January 27.

Architectural Association.—Mr. R. Caulfield Orpen, B.A., F.R.I.B.A., on "The Architecture of Dublin," at 8 p.m.

Wednesday, January 29.

Edinburgh Architectural Association.—Mr. Forrest H. Lightbody, F.R.S.E., on "Valuations."

Worshipful Company of Carpenters.—Mr. J. M. W. Halley on "The Craftsmen of St. Paul's," Carpenters' Hall, at 7.45 p.m.

Thursday, January 30.

Concrete Institute.—Dr. J. S. Owens, A.M.I.C.E., on "The Settlement of Solids in Water and its Bearing on Concrete Work," at 7.30 p.m.

Architectural Association Camera, Sketch, and Debate Club.—Annual Dinner, Café Monico, 7 p.m.

Friday, January 31.

Leicester and Leicestershire Society of Architects.—Mr. A. S. Jennings on "Modern Progress in Paints and Painting."

Monday, February 3.

Royal Institute of British Architects.—President's Address to Students. Presentation of Prizes.



# THE ARCHITECTS' & BUILDERS' JOURNAL.

Wednesday, January 29, 1913.

Volume XXXVII. No. 942.

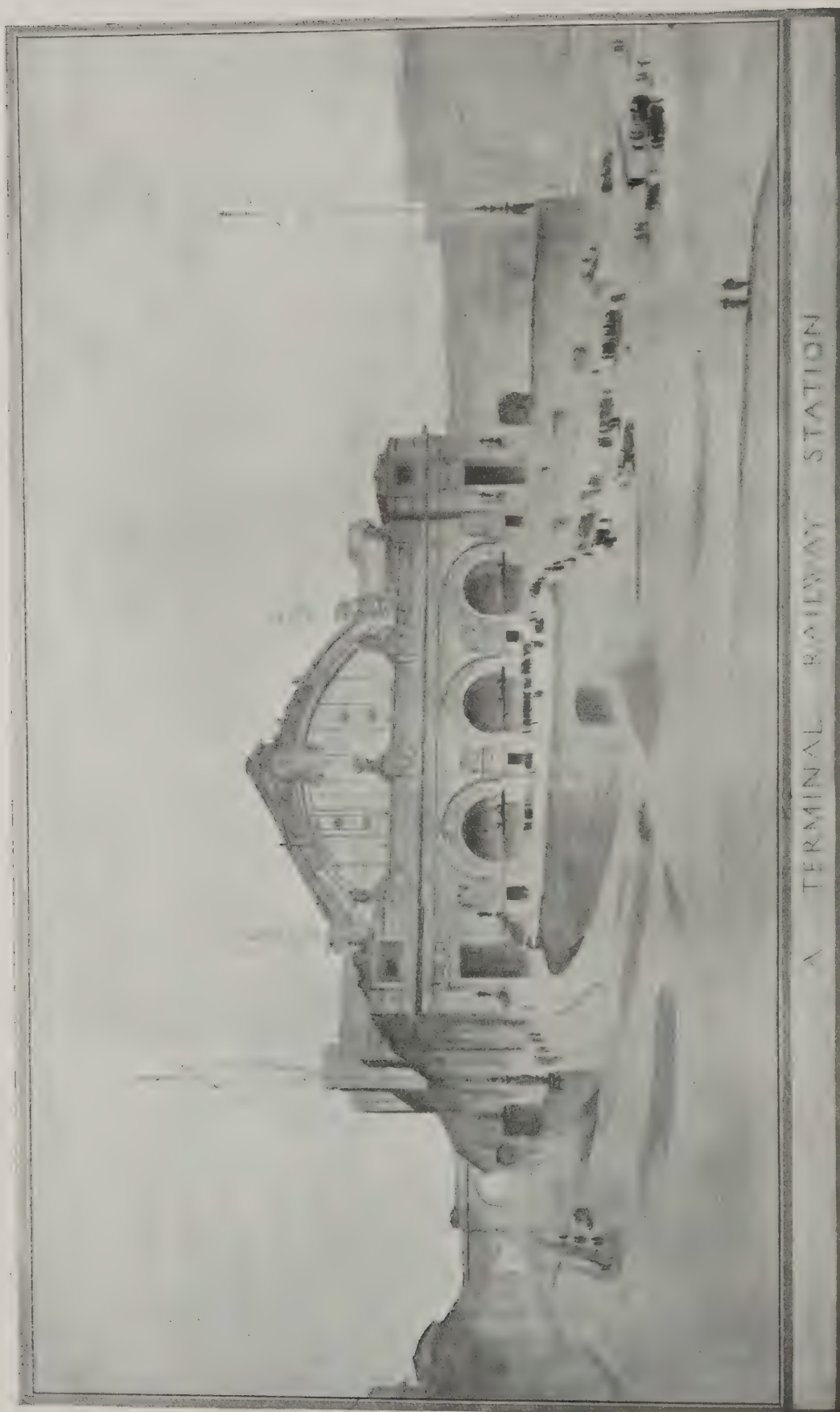
No. 18.

*Il Signor Cavaliere Edvard Hölter amatore delle Belle Arti  
Officiale di Cavaliere Gio Battista Piranesi D D D  
Facci*



*Scanzonatore inteso che si vede nella F. 1. 1.*

(From Piranesi.)



PERSPECTIVE OF DESIGN AWARDED THE SOANE MEDALLION. BY JAMES M. WHITELOW.



# THE ARCHITECTS' & BUILDERS' JOURNAL.

JANUARY 29, 1913.

CAXTON HOUSE, WESTMINSTER.

VOLUME 37. No. 942.

## The French Invasion.

WE seem to be on the eve of a French invasion. A new educational body has been founded with the express object of importing French methods of design and draughtsmanship. A committee consisting largely of well-known French names has been collected, and has issued a memorandum which explains that the new body is under the patronage of a French architectural society. Ateliers are to be opened next month in Wells Mews, Soho, and a Frenchman is to be put in charge. No doubt a mews in Soho has been selected as the nearest English equivalent to the Latin quarter. We hope that the students, together with their imported French professor, will see the necessity of adopting special ties and trousers. Let them have confidence and play the game completely, for the fates are already working in their favour. Before the doors of the ateliers are open, the first skirmish has been fought and won. Our own sedate Institute has hauled down the English flag and has given this year's Soane Medallion to a design in which the sculptured extravagances of the Frenchmen are most successfully emulated.

Now that the invader is already at the gate, let us ask ourselves in the true English manner whether we are prepared to resist him. Having muddled through for so many years, what forces can we muster? Have we any system of our own to compete with his? His methods of design are admittedly of great range; do they outrange ours? His system of planning is equally applicable to a small building and to a large town. Have we anything equal to it? Yes, indeed. Let us never forget our English farmhouse. We have that, praise heaven, to fall back upon. In the Boer War the plans of our generals may have miscarried, but there was always a sufficiency of private soldiers to be sacrificed. The farmhouse is to English architecture what the private soldier was to British strategy. Tile-hanging is just as good as town-planning. Our garden cities have proved it, and we know. Have we not made our most successful tile-hanger our leading town-planner? Whether Delhi be Indian or Greek, ancient or modern, parochial or imperial, is a small matter so long as it has the domestic virtues. On that we are all agreed.

Ethelred the Unready seems to be our national hero. If the French invasion had come five years hence, we might have been ready to meet it. Two years ago the Institute made the discovery that design was the main business of architects, and that form in the abstract, apart from hygiene and the accidents of weathering, was worthy of study. It founded but a year ago its system of designs as testimonies for the Final Examination, and the pages of this journal have shown that the demand has produced a worthy supply. In a year the number of schemes submitted for a single subject has risen from nine to fifty, and at the same time there has been a corresponding rise in the standard of the work. In a little while the Institute

will be able to set larger and more monumental schemes for these subjects, until the time comes when we can be sure that every Associate before membership has had his eyes opened to the great imaginative possibilities of architecture. When that has happened we shall have evolved some civic virtues to balance our domestic ones. By then all our schools will have to teach, quite frankly, design and the theory of design. They can no longer be content with brick and timber construction and the general history of architecture. The Architectural Association School has recently restored the drawing of the Orders to its curriculum. Our French friends may laugh at this, but let us assure them it is indeed a portentous step. It should remind them that England, too, has its classical tradition, and that in a few years' time we shall all be aware what a great and noble tradition it is. No other country has produced a building comparable to St. George's Hall, and in recent years, owing to a faithful few, such buildings as the Selfridge Store, the Wesleyan Hall, the Ritz Hotel, and the Royal Automobile Club over-top anything that has been done in Paris during the same period. The fact is, the great classical tradition common to all the nations takes on a soberness and dignity on English soil which is lacking to it on the Continent. Roman planning and Greek detail are as much our heritage as they are that of France and America. All we need is the time, the will, and the knowledge to do the work. If we have these, and signs are not wanting that we have, the French stimulus can do us no harm. It will but accelerate our natural inclination. That is why we do not wish to hastily condemn this new experiment of French ateliers. Our only anxiety is lest in too eagerly grasping its gospel we may accept also its eccentricities and vulgarities. For ourselves, we should have welcomed with greater enthusiasm an embassy from America, especially if the ambassador brought his credentials from that home of scholarship and refinement, the office of Messrs. McKim, Mead, and White. America may have received its creed from France, but in the hands of this firm it has re-edited it in a form more suited to English ideas of dignity and good taste.

The directness and scale of the best American buildings have probably been influenced by the *projets* of the Ecole des Beaux-Arts, but the mode of articulation in these buildings is more Roman than French. In fact, in America there are at the present moment two distinct schools of thought, one deriving from Paris, and one which goes afresh to antiquity for its inspiration. There is nothing French about the great Pennsylvania Railway Station, and yet most English architects would agree that it is the greatest existing American building. The same direct appeal to classical sources is to be seen in the magnificent new theatre by Messrs. Richardson and Gill, which has just been opened in Manchester. This building, which we intend to illustrate shortly, should have more influence for good on English architecture than half a dozen French ateliers.



What has been needed most by the present classical movement in England is a new building to sum up its ideals and place them before the public in a concrete and tangible form. It has been left to these young architects, full of both knowledge and enthusiasm, whose touch the initiated have been able to trace on several recent London buildings, to achieve this.

Remembering, then, our own tradition, let us welcome these French missionaries, but at the same time make sure that we keep in our own hands the ultimate saving of our souls.

C. H. R.

#### Fees on a Large Scale.

THAT the competitive system, despite its shortcomings, has the very great merit of giving an unknown man the opportunity of securing a great work, is evident enough; but it is well to remember also what a large monetary consideration may also be involved. A most striking illustration of this fact is afforded by the report of the Establishment Committee of the London County Council, wherein it is stated that the tenders for the construction of the superstructure of the new County Hall will be received on February 4th, and that on the signing of the contract for that work payment of about £10,800 will become due to Mr. Ralph Knott, the selected architect, in respect of services which have already been rendered by him in preparing drawings, etc., relating to the new building; this amount representing nine-tenths of the commission calculated in accordance with the terms of the agreement between the Council and Mr. Knott, the remaining one-tenth being payable to Mr. W. E. Riley, the Council's official architect, who was associated with Mr. Knott after the latter's design had been accepted. The staff expenses incurred by Mr. Knott for so large a building as the new County Hall must, of course, have been very heavy, but there is a good margin remaining for his production of the successful design, and we trust that this great work which he has secured so early in his career will prove to be as enduring a monument to his architectural ability as it must surely be the making of a small fortune in practice. Immediate payments on account are to be made, Mr. Knott receiving £2,700 and Mr. Riley £300.

#### A Blow at the Building Industry.

A LEGAL decision that has attracted less attention than its importance deserves was given by Mr. Justice Horridge in the King's Bench Division on January 13, on a special case stated for the decision of the Court concerning an assessment by the Commissioners of Inland Revenue of increment duty under Sections 1 and 2 of the Finance Act, 1910. Mr. R. J. Lumsden, a Newcastle builder, had appealed to the Official Referee against an assessment of increment value duty amounting to £25 on an alleged gross increment of £125, on the occasion of the sale of a grocer's shop on a building estate, and the Official Referee had decided that no duty was payable. Certain points of law were reserved, however, and it was upon these that the case came before the High Court. Shortly, the Crown contended that the shop had been sold at an advantage to the builder, and that the excess was site value. On the other side it was contended that the site not having risen in value, no increment duty was payable, the profit being due to other causes than those contemplated by the Act, the intention of which was only to place a tax on land when there had been a real rise in its value. Judgment was given in favour of the Crown—that is, of the Commissioners of Inland Revenue—and against the decision of the Official Referee. This judgment realises almost the worst apprehensions of the building industry; for, as the Solicitor-General remarked in opening the case for

the appellants, "the general question raised would be a future guide for a large number of cases." It is possible that this judgment may be upset in a further appeal; but it is perfectly obvious that until this occurs, or until the Act is amended, the building industry is seriously menaced. There is good cause, therefore, for stringent measures to be taken by the building industry as a whole to remove the incubus thus imposed upon them.

#### English Arts and Crafts.

IT is easy to anathematise William Morris for bringing forward his Windsor chairs from the kitchen where they should have been allowed to remain, but in doing so we entirely ignore the revival in the arts and crafts which he and his fellow-workers initiated. And though we may not agree with the mock mediævalism which the great figures of the revival stood for, it is unworthy not to recognise the great honour which is due to Morris's unselfish labours. There was, in those days, no question of picking up the threads of a broken tradition: it meant the making of an entirely new one, based on the principles which had infused the work of centuries ago, when a thing of use was also a thing of beauty. The mistake lay in travelling back too far for inspiration, oblivious of the gulf between the modern craftsmen and the old. But in recent years one has noted that the arts and crafts have become more related to our own day, and at the present time, as the exhibition in the Grosvenor Galleries very clearly shows, excellent work is being done. It is fitting, therefore, that some trouble should be taken to see that the exhibit of English arts and crafts to be sent to the forthcoming Ghent Exhibition should be a thoroughly representative one. Under the direction of a very capable committee there is every reason to believe that this will be done.

#### The National Federation.

TO-DAY (Wednesday, January 29th) the National Federation of Building Trades Employers of Great Britain and Ireland are holding their annual general meeting in the accustomed place—the Balmoral Room of the Trocadero Restaurant, Piccadilly Circus, London, beginning at 10.30 a.m. The annual election of officers will then take place, when, if the normal course is followed, Mr. Jas. Wright, of Nottingham, who during the past twelvemonth has so ably fulfilled the growingly onerous duties of president, will be succeeded by Mr. Frederick Higgs, of London. Considering that the working strength of the Federation lies mainly in the northern counties, it is rather surprising to find that London so frequently supplies the president, that honour falling to it apparently about every third or fourth year. The London presidents, indeed, have been among the most able and popular on the lengthening list, and both these traditions, as well as the dignity of the office, will be well maintained by Mr. Higgs. Among the important business that has been set down for consideration at this annual general meeting, three items that promise more than merely domestic interest refer respectively to a report on provisional sums in quantities (of which complaint has been made that these sums are excessive, particularly in relation to schools and public buildings), another on Finance Act valuations, and a third and fourth relative to suggested amendments in the R.I.B.A. or Agreed Form of Contract, a draft form of sub-contract having been submitted to the R.I.B.A. by the Institute of Builders, while an amendment of Clause 30 of the agreed form is proposed by the Federation. The results of the deliberations upon these subjects will probably appear in the report of the proceedings which we hope to print in next week's issue.



## THE DRAWINGS FOR THE R.I.B.A. COMPETITIONS.

NEARLY all exhibitions of students' works have a peculiar interest and charm—an atmosphere, as it were, of youth and hope, which often forms a refreshing contrast to the more serious collections of those who have "arrived." The unexpected frequently happens, the future master makes his *début*, the old boundaries are crossed, and here is the birthplace of those heralds of the dawn who, although a little faint and uncertain at times, proclaim the coming of a brighter day.

More especially is this the case with students of architecture, and one turns with relief from the prosaic and mundane difficulties which are inseparable from all works of a practical nature, and which, however successfully overcome, are more or less evident in exhibitions of a utilitarian character, to escape for a few minutes into the realms of pure idealism.

Amidst the roll of competitors for the R.I.B.A. prizes there is not infrequently found one outstanding personality who, either by originality of conception, treatment of subject, or by skill in draughtsmanship, compels attention and becomes the central interest of the exhibition. There are many who will remember the feelings of astonishment with which they viewed Mr. Beresford Pite's remarkable presentment of a West End Club, and at a time when some phase of Georgian was considered the only passport to success Mr. Drysdale, fresh from an atelier of the Beaux-Arts, with a design conceived purely on French lines, carried off in one year both the Soane and the Tite. And still more recently the brilliant draughtsmanship of Mr. Barker achieved an equally striking success.

### *The Soane Medallion.*

The chief attraction of this year's competitions is undoubtedly Mr. Whitelaw's design for the Soane Medallion. Mr. Whitelaw shows that he is able to appreciate the intricacies of a large and complex problem, and to successfully grapple with them. In his lay-out and general conception he displays gifts of imagination and a breadth of outlook which are remarkable. The problem is essentially a modern one, and this Mr. Whitelaw fully realises. He considers, rightly, that a building of this importance demands a setting of corresponding scale and magnificence, and his general plan is an admirable exposition of these requirements. There is a simplicity and directness in the arrangement of the various parts, and the need for general accessibility is well met. Of the architectural expression in elevation and section it is impossible to be quite so enthusiastic. The design owes much to modern French influence; and whilst the masses are well distributed, and there is a fine sense of modelling, there is at the same time a confusion of ideas, and a want of logical sequence in certain of the features, that somewhat detracts from its merits as a whole. This confusion of ideas occurs in the author's inability to appreciate the difference between symbolic and functional expression. To be more definite, with the great train shed of glass and iron, dominating the whole composition, and so evidently the termination of a great railway system, it was a mistake to design the three main entrances as symbols of the tunnel, rather than as portals for the multitude, which they really are.

The expression of symbolism is inherent in all great imaginative works, but it should be subservient to and not, as in this case, paramount over the more important functional expression.

The draughtsmanship is so very tentative that it is impossible to come to any very definite conclusion as to what would be the effect of the architecture were it fully realised. As all architects know, the stage between the preliminary sketch and the finished drawing is bridged with so great difficulty that drawings which do not show, at any rate in part, something more than

a blur of pencil can hardly be said to have fulfilled all the conditions of a competition of this importance. Much of the detail appears to be out of scale, and there is an evident desire to astonish and captivate merely by an originality of treatment, which is one of the worst features of modern French architecture. This design is an example of the best and the worst results that come from the Beaux-Arts teaching of to-day. However, in spite of these defects, Mr. Whitelaw is to be congratulated on having produced a design which, though more fruitful in poetic suggestion than in actual result, is a fine and inspiring piece of work.

Mr. Whitelaw's closest competitor was Mr. Bradshaw (of the Liverpool School of Architecture), who has received Honourable Mention, and, had he shown that grasp of the problem which is so evident in the winning set, would, with his superior architectural expression, doubtless have taken the first place. The most obvious defect in this scheme is to be seen in the involved planning of the principal approaches, and one cannot help feeling that in his desire for architectural display he has lost sight of the necessity for the direct expression of essential requirements.

In all buildings which provide for the constant egress and entrance of large numbers of people, the portals should be multiple, as in the new station at Washington and the Gare d'Orleans in Paris. One dominating entrance as provided in this design suggests that the convenience of the crowd which uses this building is subsidiary to that of some individual, a condition which does not here exist. Mr. Bradshaw has a good knowledge of detail, a fine feeling for architectural form, and his draughtsmanship is superb. The longitudinal section is a particularly fine performance. As drawings this set is the finest in the exhibition, reminding us of those unapproachable essays of Cockerell in Roman restoration. Mr. Bradshaw's architecture embodies the best spirit of English tradition and its dignified restraint is in marked distinction from the prevailing spirit of modern French, to the insidious attractions of which so many of our most promising students succumb. Although this design is a little immature, the power displayed should ensure for its author a brilliant future.

Mr. Cable is also awarded an Honourable Mention. His design is shown by a beautifully executed set of drawings. He has evidently paid great attention to practical details, and is to be commended on this account. The elevations are a little bald and common place, and there is a feeling that he has held his imagination too severely in check.

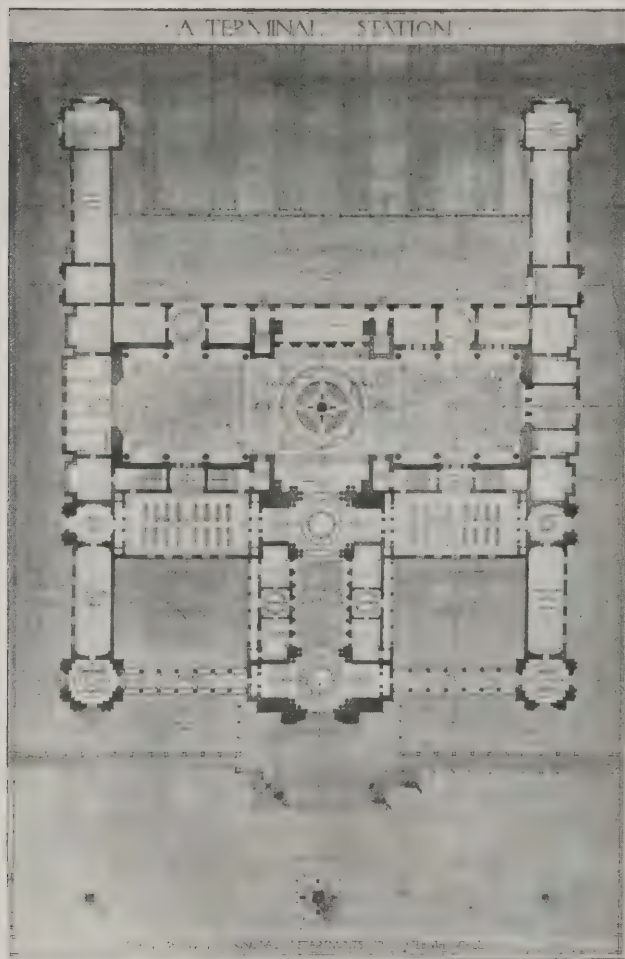
### *The Tite Prize.*

The subject for the Tite was a Royal Palace, a problem full of fascinating possibilities, which, however, few if any of the competitors have adequately realised.

The design for a Royal residence, however important, must always embody the idea of a home; it should be a house for the head of the State, and, as distinguished from the mansions of the nobility, should have a regal significance. To attain this there must be unapproachable splendour and dignified isolation. In no type of building does tradition play a more important part, yet almost every competitor fails in his non-recognition of this.

Mr. Farey's design, shown in a beautifully executed set of drawings (the principal elevation of which is reproduced as the Centre Plate in this issue), is lamentably deficient in this respect; otherwise it is so far in advance of the rest, both in the matter of composition and in the handling of detail, that unquestionably he merits his success. Mr. Bryan Watson, who has been awarded a medal of merit, does in a way show some apprecia-





PLAN OF SOANE DESIGN. BY H. C. BRADSHAW.  
(Hon. Mention.)

tion of the value of tradition, but to base his design on the Palace of an Italian nobleman of the fifteenth century is to have overlooked later and more closely related examples. Probably "Abacus," even with his defective draughtsmanship and his execrable detail, shows a clearer perception of the qualities which go to make a Royal Palace than either of the two premiated designs, or indeed of any of the others submitted.

*The Owen Jones Studentship.*

An extract from the conditions under which the Owen Jones prize is awarded is as follows:—"For the encouragement of the study of Architecture more particularly in respect of Ornament and Colour Decoration with drawings exhibiting their acquaintance with colour decoration and with the leading subjects treated in Owen Jones's 'Grammar of Ornament.'"

It is clear that such conditions must tend to concentrate the attention of competitors on the minutiae of detail rather than on tone and colour in their broad and abstract sense. A liberal interpretation of these conditions must be taken, if any advance is to be made in the study of colour as applied to modern buildings.

Whilst a knowledge of the application of colour to ornament as was possessed by the decorator of the Museum at Munich is essential to the fully qualified architect whose good fortune it is to be the decorator of an important building, the danger of neglecting the appreciation of colour in its abstract appeal, which is met with in a too exact fulfilment of the conditions of this competition, is exceedingly grave. Only the more gifted of the competitors will avoid the pitfalls of these conditions, and blend the details of his ornamentation in one harmonious whole.

Their detrimental effect is particularly exemplified in Mr. Harvey's drawings of the Church of the Nativity at Bethlehem, where the care which he has bestowed in correctly indicating colour in detail has resulted in a

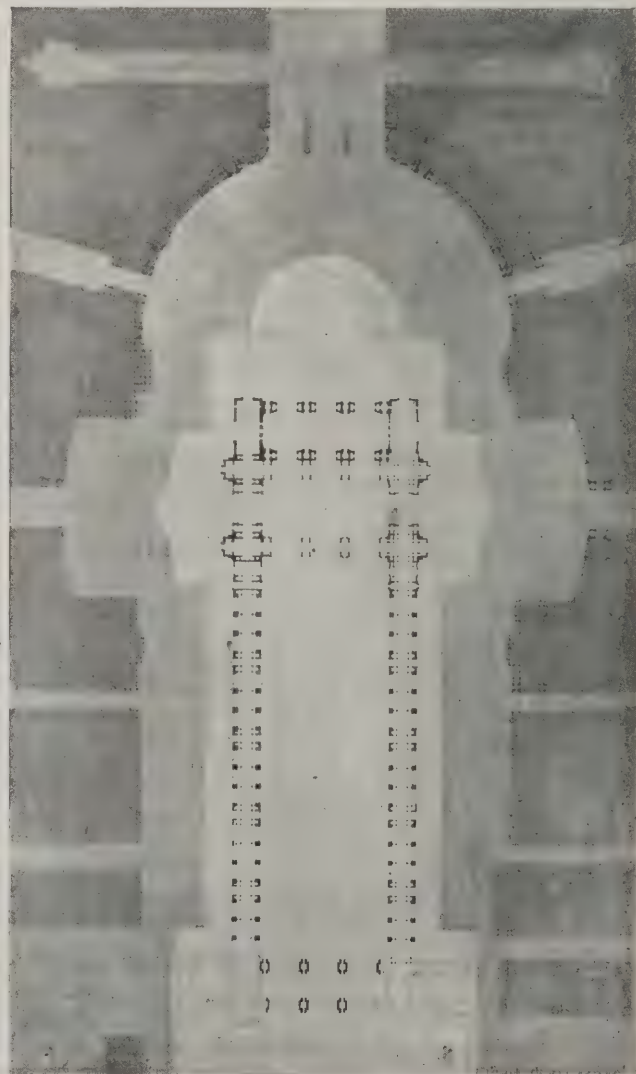
drawing so painfully laborious in its execution as to lose all sense of harmony.

This criticism applies more or less to all the works submitted in this particular competition, but these faults are the result of the conditions, and in criticising this work it must not be forgotten that within the limitations imposed all the sets submitted show considerable merit. There is little to choose between them, and Mr. Harvey's success is probably due to the fact that he has concentrated his efforts in one direction instead of diffusing his energies in an attempt to deal with examples of all phases and styles.

Much careful work has been done by the students for the Pugin and the R.I.B.A. Silver Medal for Measured Drawings (which has been gained by Mr. H. C. Mason, a student of the Liverpool School of Architecture, for his fine set of Blenheim Palace), and also in the competitions which are of a more practical nature, such as the Saxon Snell and the Grissell, but the writer has in the present article attempted to deal with the general principles underlying the more important competitions and their relation to modern design rather than to make a detailed criticism of all the individual works submitted.

STANLEY C. RAMSEY.

Referring to the drawings, Mr. H. V. Lanchester, F.R.I.B.A., writes:—"In view of the present discussion on the merits of the Beaux-Arts system of training, your readers will be interested to notice that four out of the five designs receiving awards in the R.I.B.A. Soane and Tite competitions are strongly influenced by Beaux-Arts methods, not only in their composition, but also in the manner of their presentment."



PLAN OF WINNING SOANE DESIGN FOR A TERMINAL RAILWAY STATION. BY JAMES M. WHITELAW.



## ARCHITECTURAL CONDITIONS IN CANADA.\*

BY F. S. BAKER, F.R.I.B.A., OF TORONTO.

BEFORE I speak of Canadian architecture I would like to say a few words about the general conditions which surround the profession of architects in Canada. As in England, the system of "pupilage," but without fees, is the most common commencement for the would-be architect. In four of the Provinces—Quebec, Manitoba, Saskatchewan, and Alberta—the title architect is protected by law, and no one may call himself an architect unless he has complied with the law, and qualified by passing certain examinations prescribed by the Act. A fifth Province—Ontario—also has an Act, but, owing to the insertion of the word "Registered" before "architect" by the Government of the day, it has no effect, and anyone who pleases may call himself "architect." The remaining Provinces are all organising with a view to obtaining legislation similar to that in force in the four Provinces above named. In all of these four Provinces the degree of Associate R.I.B.A. is accepted as a satisfactory qualification for admission to membership at present, and here I may say that the Royal Institute of British Architects is held in very high esteem throughout the Dominion. The Universities of these Provinces, including Ontario, have special courses in architecture, and issue degrees. The best of these is at McGill, in Montreal, which Mr. Capper and Mr. Nobbs have largely helped to its present condition of efficiency.

*Skilled Assistants Wanted.*

The number of students entering the profession is as yet very small, and architects have to rely upon the British Isles and the United States for skilled assistants. I do not recall a time in the past ten years when there were more than enough. Owing to the fact that in Canada the builder takes out his own quantities, drawings have to be made very complete, and this has tended to raise the quality of draughtsmanship throughout the country, and, incidentally, gives the student a chance to learn details of the work which an English student does not come in contact with. If this can be said in favour of the lack of quantities, the opposite must be said in the difficulties occasioned the practising architect in dealing with builders, owing to the lack of the system in vogue in England. At present there are no travelling scholarships in architecture, and the necessity for these is becoming more and more apparent. Private ateliers, in which practising architects of the younger school mostly are patrons, are available for the students in many of the large towns during the winter.

It has been said that "the next fifty years will decide the character and type of Canadian architecture," but, having regard to the extreme youth of the country, such an event would seem to be most unfortunate, and I for one would like to feel that the students of fifty years hence will have something to strive for in creating a greater excellence than the art will then have reached in Canada. It should be said, however, that the Classic orders are fairly well understood, the value of proportion is appreciated, and the application of ornament and mouldings handled in a conservative way. The climate, of course, has a great deal to do with the nature of the buildings in the various parts of Canada. A country which extends for thirty-five hundred miles must, of course, show considerable variation in that respect. There are the Eastern Provinces, tempered on the coast by the Atlantic Ocean, the Province of Ontario, which is affected by the great lakes, a long stretch between Lake Winnipeg and the Western Coast in which no

large lakes exist, and the Province of British Columbia, the climate of which is also tempered by the Pacific Ocean along the coast. It is possible, at the same hour, therefore, to have a temperature in mid-winter of, say, forty-five degrees at Halifax, ten degrees below zero at Montreal, twenty degrees at Toronto, twenty degrees below zero at Winnipeg, and forty-five degrees at Victoria. Halifax would be without snow, Montreal would probably have three feet, Toronto fifteen inches, Winnipeg two feet, and Victoria none. In midsummer these figures would be reversed; the two sea-coast cities and Toronto remain cooler, while Montreal and Winnipeg suffer from extreme heat. Throughout all of the months of the year over the whole country there is a wealth of sunshine and bright skies. All of these districts are subject to severe snow blizzards, and in the summer to terrific wind-storms. It will thus be seen that provision must be made by the architect against extreme cold, with accumulations of snow and ice, and extreme heat, conditions of extreme moisture and extreme drought, of the most brilliant sunshine and dull days, of perfect calm, and wind-storms which often reach the proportion of cyclones. Up to this time Canada has not suffered from earthquake to any extent, although shocks have been felt in nearly all parts, and every architect takes the possibility of an earthquake occurring into his calculations in erecting a building. The general character of sub-soils is such as to insure a good foundation, a strata of stiff clay occurring in most parts before the rock is reached. There are, of course, many localities which are exceptions to this rule and where special precautions have to be taken.

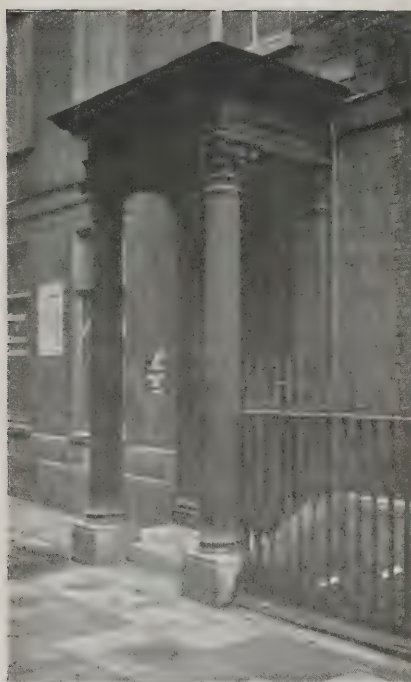
*Building Materials in Canada.*

You will be interested, perhaps, to hear something regarding the building material obtainable throughout Canada. Splendid marbles are now procurable suitable for almost any purpose, and I will not be surprised if when these quarries are fully opened marbles will be found which equal any which have been produced on the continent of Europe. Building stones are only fairly good, and much stone for face work is imported. It may be, however, that the opening of new districts by the building of railways will overcome this difficulty. In the eastern part of the country very fine granite is obtained, and also in Central Ontario. Good limestones are quarried in the Eastern Provinces, and throughout Ontario, and the West in many parts.

The Portland cement produced in Canada is excellent; everywhere fine grit sand is obtainable, and good limes are burnt in nearly all districts. Canadian bricks are well known for their excellence, but the production of terra-cotta, other than hollow blocks, for fireproof construction work, is limited. Steel sections are rolled from Canadian ore in nearly all the large centres, but an enormous quantity of structural steel is imported from the United States, Great Britain, and Germany. Castings in metal of good quality are easily obtainable. Canadian woods are well known; white pine, red pine, and spruce, white and red oak, birch, maple, walnut, cherry, butternut, white-wood, and cedar are the commonest varieties. Wood of all kinds is becoming more and more difficult to obtain, and the price is advancing, with the result that what is known as "fireproof construction" is becoming more and more popular. Sheet metal, galvanised iron, and copper are almost entirely imported. Sheet lead is, of course, scarcely used for flashing purposes, owing to the large range of temperature which prevails. Paints and oils are produced on a large scale, and of excellent quality, but the high grades of glass are as yet mostly im-

\* Extracts from a paper read before the R.I.B.A., on January 20th.





Portico in Catherine Court.



Catherine Court.



Doorway in Crutched Friars.

#### OLD HOUSES IN THE CITY TO BE SOLD BY AUCTION THIS WEEK.

ported. Sanitary pipes and fittings, as well as fixtures, are manufactured, but a large quantity is also imported, especially porcelain fixtures, which come from Great Britain and the United States. Gas and electric pipe, fittings, and fixtures, with all kinds of glassware, are made in most localities. Tiles are not produced in Canada in any quantity, but are largely imported from Great Britain, the United States, and Holland.

*(To be concluded.)*

#### OLD HOUSES IN THE CITY.

VERY great interest attaches to the forthcoming sale of the old houses in the City scheduled for demolition to make way for the new Port of London offices, which are to be erected from the designs of Mr. Edwin A. Cooper, F.R.I.B.A., selected in competition last summer.

The area is an irregular oblong, bordered by Trinity Square, Crutched Friars, Seething Lane, and Savage Gardens, and is covered by houses dating from the eighteenth century. These old houses, built of brick, recall the time when the business man lived in the City, and though they have long since ceased to be used for their original purposes—having for years past been occupied as offices—they retain, both externally and internally, many original features of great interest. There is, for example, in No. 25, Crutched Friars, a fine example of an eighteenth-century staircase, with its triple balusters to each tread, rising up three floors, and in many of the other houses are to be seen some staircases of the Wren type, with sturdy balusters and stout dado panelling. There are, too, a large number of chimneypieces and fireplaces, some of these being of the Adam period—of wood with “compo” enrichments, and a few of marble, while in Muscovy Court is an elaborate eighteenth-century mantel ascribed to Gibbons, though the carving appears to us to be of later date. Overdoors and panelling complete the list of interior fittings included in the sale.

Of the exteriors, the doorways and porticoes attract chief attention. In Catherine Court is a fine portico with fluted columns and pilasters, carrying an enriched hood; in Crutched Friars a very graceful eighteenth-

century doorway with fluted pilasters and curved pediment (these two being shown by the accompanying photographs): and in Seething Lane are two pairs of twin doorways dating from about 1730, characterised by fluted Doric columns and a carved frieze.

It is anticipated, therefore, that the sale—which is to be conducted at No. 10, Trinity Square by Messrs. Fuller, Horsey, Sons, and Cassell on Friday next, January 31, commencing at twelve o'clock—will be largely attended. We understand that not all the property acquired for the Port of London new offices will then be offered, as the contractors for the demolition, Messrs. A. and S. Wheeler, retain for their own disposal a certain number of houses in the area, these houses containing, like the others, a large quantity of old panelling, balusters, etc.

#### SCULPTURE ON THE OPERA HOUSE, PARIS.

THE detail which we illustrate on page 123 as the second of this new series is to be seen both on the front and side elevations of the Paris Opera House, being set centrally over the curved pediments that crown the end pavilions. Like all the other sculptured ornaments in the building, it displays the astonishing resource in design which Garnier possessed.

#### MODERN SMALL HOUSES.

THE two cottages which we illustrate on page 126 stand on high ground in a rural part of Warwickshire, near the village of Berkswell. All the facing work is carried out in old materials, the bricks being of varying shades with the joints scraped, and the framing of silver-toned solid oak pegged together, with herring-bone old brick filling and rough plaster on the gables. Old tiles cover the roof, many with the lichen still adhering to them. The valleys are built up in order to avoid hard roof angles. Mr. Charles M. C. Armstrong, of Warwick, was the architect, and Mr. Charles Hope, of Berkswell, the builder.



## CORRESPONDENCE.

The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents.  
Correspondents are asked to be brief and to write on one side only of the paper.

*The Problem of Smoky Chimneys.*

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—Mr. Gunn's statement, in his interesting article on this subject in your issue of January 8th, that the presence of a large void immediately above the fireback induces down-draught, is undoubtedly correct. Where this usually occurs is above the springing of the chimney arch, and it is due to the usual method of reducing the flue to its ultimate dimensions by means of oversailing courses or "gatherings," as shown in the first illustration to his article.

A much better and cheaper way is to accomplish this by means of an arch, as shown in the accompanying sketch (Fig. 1). Care must be taken that the arch is properly bonded where the opening for the flue occurs, and the bottom edges of the bricks around this opening may with advantage be splayed. The thrust of this arch is negligible owing to the corbelling action of the brickwork above, and what little is present can easily be dealt with by the brickwork in the chimney back on one side, and the chimney bar on the other.

It may not be out of place to mention here that bricklayers generally have a playful habit of knocking off the "caulkings" of chimney bars—because these are awkward to make good to—thus rendering them useless for the very purpose for which they are provided.

The writer once cured an existing chimney which smoked when the wind was in a certain quarter—due to the presence of a large stack near by which was higher than the one in question—by inserting four slate louvres just below the capping, facing, of course, the quarter in which the troublesome wind had its origin (see Fig. 2). The principle of this is identical with some of the patent pots, but it has the merit of being cheap and not unsightly.

I am inclined to think that the arrangement shown

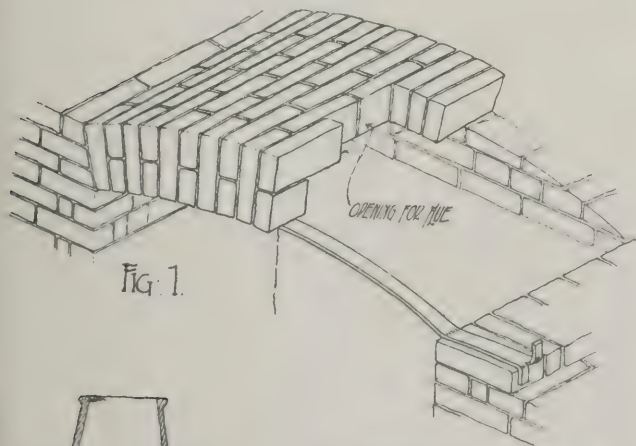


FIG. 1.

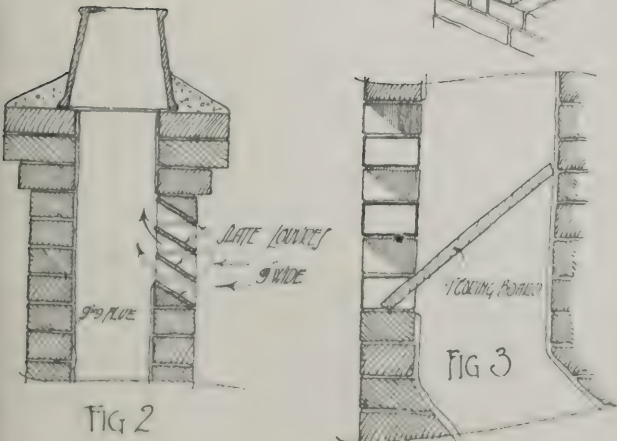


FIG. 2



FIG. 3

in Mr. Gunn's fourth illustration would be detrimental rather than otherwise, as the void—which all are agreed it is desirable to eliminate—will tend to induce a down-draught by reason of the collection of cold air, and that the chimney so treated, if efficient, would be so in spite of and not because of it.

It is, in the writer's opinion, too late to deal with down-draught when it reaches the bottom of the flue, as it will drive the smoke down *en bloc* before it.

To conclude, much trouble would be avoided, if the provision of coring holes, as shown in Fig. 3, were insisted upon—to be placed immediately over each bend in the flue. The board shown will deflect any droppings into the room, and so prevent their accumulation upon the ramps. Needless to say, if this is not done no amount of pummelling with an iron ball on the end of a rope will restore these slopes to the condition in which they were left by the workman.

Mansfield.

L. E. W.

*Mr. E. P. Wells's Presidential Address.*

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—You have had expressed in your columns of late several opinions in respect to Mr. Wells's reference to the lever-arm of reinforced concrete beams. If it were simply a matter of opinion, I would not enter the controversy, but it is a question only of fact. Mr. Wells's address had the great merit of dealing with facts elicited by practical experience, and when he said, "In fact, in the case I now mention, the lever-arm was practically the total depth from the axis of the tension members to the outside of the compression member of the beam," he was right in concluding that the experiments showed "an enormous increase in the lever-arm, due to the rich concrete."

The explanation is simple. The neutral axis and the lever-arm of a reinforced concrete beam depend upon the modular ratio and upon the amount of reinforcement, a fact which is recognised, however inadequately, in the R.I.B.A. Report, wherein is given, for rectangular beams, the formula—

$$n_1 = \sqrt{(m^2 r^2 + 2mr)} - mr$$

Without admitting the correctness of the analysis upon which this formula is based, I would point out that if we take a value of  $r = .01$  we get

$$n_1 = .42 \text{ and } a = .86d \text{ for } m = 15$$

$$n_1 = .27 \text{ and } a = .91d \text{ for } m = 5$$

i.e., 6 per cent. increase in the lever-arm.

My experiments at the L.C.C. School of Building (confirmed by recent United States Government tests) have shown that a uniform modular ratio of 15 is not even approximately correct for good quality concrete as ordinarily used to-day in English practice, and that the value decreases with age, thereby increasing the lever-arm, as Mr. Wells affirmed.

It is only necessary to have a little practical experience of tests to destruction of reinforced concrete beams for this fact of increase in lever-arm to become extremely obvious without reference to any questionable formulæ into which the modular ratio enters, for we know that the total compression in a beam must equal the total tension; and when we see that as the loading progresses the cracks extend upwards higher and higher from the steel, throwing the compression on a smaller and smaller sectional area of concrete, it becomes plain that if the concrete in one case is strong enough to be able to sustain the compression on a smaller area than in another, the distance apart of the centres of compression and tension will be greater in the one case than in the other, i.e., the arm will be increased.

London, S.W.

H. KEMPTON DYSON.



## HERE AND THERE.

“PLEASANT, pleasant country,” said Mr. Pickwick, as he opened his lattice window and looked down, one sunlit morning, on a little flower garden in the midst of Kent. “Who could live to gaze from day to day on bricks and slates, who had once felt the influence of a scene like this? Who could continue to exist where there are no cows but the cows on the chimney-pots; nothing redolent of Pan but pan-tiles; no crop but stone crop?” Taking this first, backed by Ruskin’s dictum about the country being the one and only place for architects—for the town bricks up men’s imaginations, etc.—let us cite, on the opposite side, one of Charles Lamb’s many contemptuous allusions to the country. In a letter to Wordsworth, written on January 22nd, 1830, he says: “O, never let the lying poets be believed, who ’tice men from the cheerful haunts of streets—or think they mean it not of a country village. In the ruins of Palmyra I could gird myself up to solitude, or muse to the snorings of the Seven Sleepers; but to have a little teasing image of a town about one, country folks that do not look like country folks, shops two yards square, half-a-dozen apples and two penn’orth of overcooked gingerbread for the lofty fruiterers of Oxford Street—and for the immortal book and print stalls, a circulating library that stands still, where the show-picture is a last year’s Valentine, and whither the fame of the last ten Scotch novels has not yet travel’d—to have a new plastered flat church, and to be wishing that it was but a cathedral. . . . O, let no native Londoner imagine that health, and rest, and innocent occupation, interchange of converse sweet and recreative study, can make the country anything better than altogether odious and detestable. A garden was the primitive prison till man, with Promethean felicity and boldness, luckily sinn’d himself out of it. Thence follow’d Babylon, Nineveh, Venice, London, haberdashers, goldsmiths, taverns, playhouses, satires, epigrams, puns—these all came in on the town part, and the thither side of innocence.”

If one were trying to produce a sort of super-architect it would be an interesting problem as to what would be the surroundings most conducive to the production of great works—for there can be no question that surroundings are a substantial element in architectural training, else why should there be so great claims for the schools in Rome? But whatever the ideal solution may be, the facts of everyday existence force architects to make the best they can of their case, and the majority of them seem to settle the matter by taking up a position midway between the two extremes indicated; that is to say, they live in both town and country. In London, for instance, how many architects live with their work? Merely a handful. Yet more real aid is derivable from the buildings of the city than from those of the country, and far more inspiration comes during the hours over the drawing-board, amid the dull drone of traffic, than in the fascinating time with pencil and sketch-book in the seclusion of the country. Perhaps the truth is, for the Englishman at least, if not for the Parisian, that the modern city is a splendid place to work in, but a dismal place to live in. Hence, we find architects, like the rest, flitting in and flitting out, settling for the day in their office quarters, gathering together, as gregarious animals into select squares and quiet streets, and then hurrying at the end of the day to the suburb or the countryside.

\* \* \* \*

The above reference to the suburb leads one to think, once again, of the deficiencies of the suburban house, and more particularly of the semi-detached house and the depressing row. As regards the latter, one may note in passing, many a Georgian example

still remains to show that a row of houses need not necessarily be a blight upon the district, for, when designed with taste, it can present an admirable appearance. A defect of the row, however, is that there can be no side entrance, and where it is not possible to contrive a tradesmen’s door at the rear, the inconvenience to domestic arrangements renders the plan a very unsatisfactory one. For this reason the semi-detached house, while obviously more expensive to build, is an improvement. It enables an entrance to be provided at the front or the side, and also affords opportunity for a tradesmen’s door and a direct way to the garden at the rear.

\* \* \* \*

The planning of the small house, either in a row or semi-detached, is always a severe task, and it is made far more difficult by reason of an arrangement which seems to be a wilful persistence of make-believe that must surely have originated in Victorian days. Frequent are the references to the unused parlour, and its tomb-like aspect—a room very rarely entered, and never with any degree of pleasure; but in the ordinary middle-class suburban house things are very little better, for in most cases there are generally two sitting-rooms, one of which is almost unused: and the wastefulness of such an arrangement is the more apparent in a house where larger rooms are a pressing need. In many cases, where no servant is kept, the kitchen is used as a dining-room, and one of the sitting-rooms then becomes so much lumber. From this it may be premised that the ordinary plan is not adapted to the requirements of the suburban dweller; indeed, so far as the kitchen arrangements are concerned, it seems to me that the customary plan is fundamentally wrong. The kitchen, with its range, and the pokey little room called a scullery which adjoins it, should be got rid of, and in their place should be provided, first, a kitchen-scullery, a little larger than about half the size of the average kitchen, fitted with a gas stove, an independent boiler (to supersede the unknown article which is somewhere at the back of the range), a dresser, a sink, and a cupboard; and, secondly, opening off this kitchen-scullery, a servant’s sitting-room.

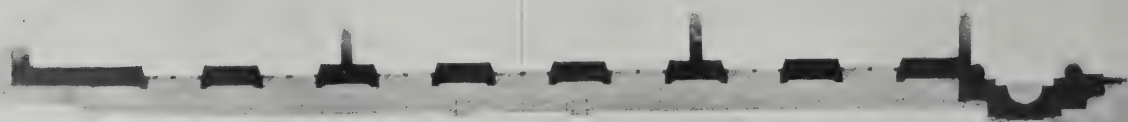
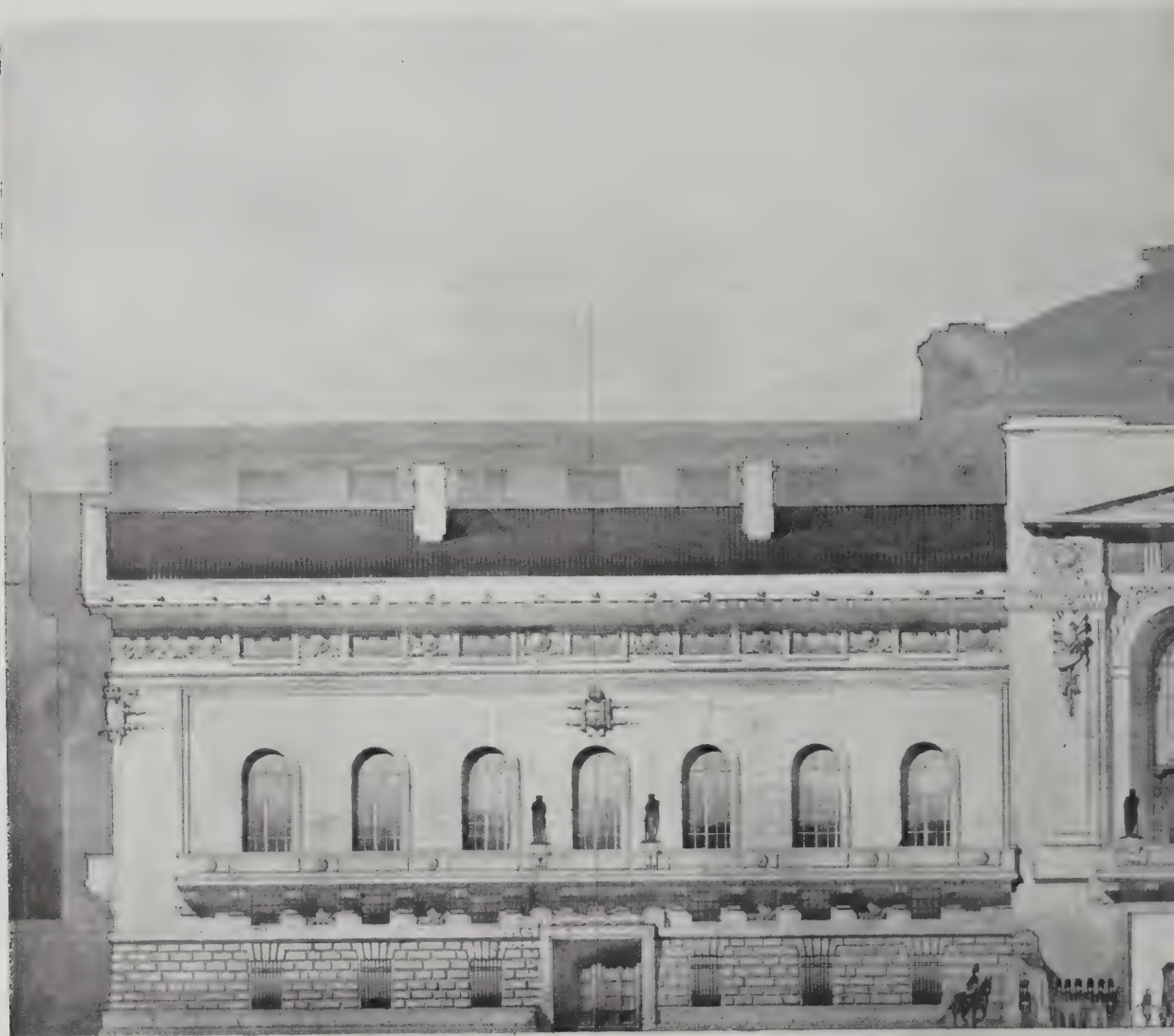
\* \* \* \*

In the small suburban house, if semi-detached, a very good arrangement would be to have one sitting-room—at the front, to put the entrance door at the side of the house, opening into a small square hall, with the stairs leading out of the end or at one side of it, to contrive a little space for cloaks and umbrellas off the hall, to provide a dining-room at the rear, with a kitchen-scullery and a larder adjoining, and the out-offices: while on the first floor would be two bedrooms, bathroom, w.c., and a box-room fitted with shelving and a linen cupboard, the latter heated from the boiler in the kitchen-scullery. I have seen some small houses planned somewhat on these lines, though still rendered uneconomical by the usual kitchen and scullery, and the superfluous sitting-room, and the result in actual working was far more satisfactory than what, for want of a better term, may be called the Victorian suburban plan. It is one of the deficiencies of the small house that the rooms are of such miserable dimensions—a deficiency which garden city experiments have increased rather than decreased. But in the revised plan outlined above it would be possible to have far larger rooms on an equal area, which would be an immense advantage. Moreover, the suggested arrangement would avoid that miserable feature of the small house—the tortuous passage from front door to kitchen, too narrow to have any effect, yet cutting off a possible extra width to the ground-floor rooms.

UBIQUE.







PLAN OF PRINCIPAL FLOOR

THE TITE PRIZE DESIGN FOR THE FACAD

TITE PRIZE DESIGN.





PLAN OF GROUND FLOOR

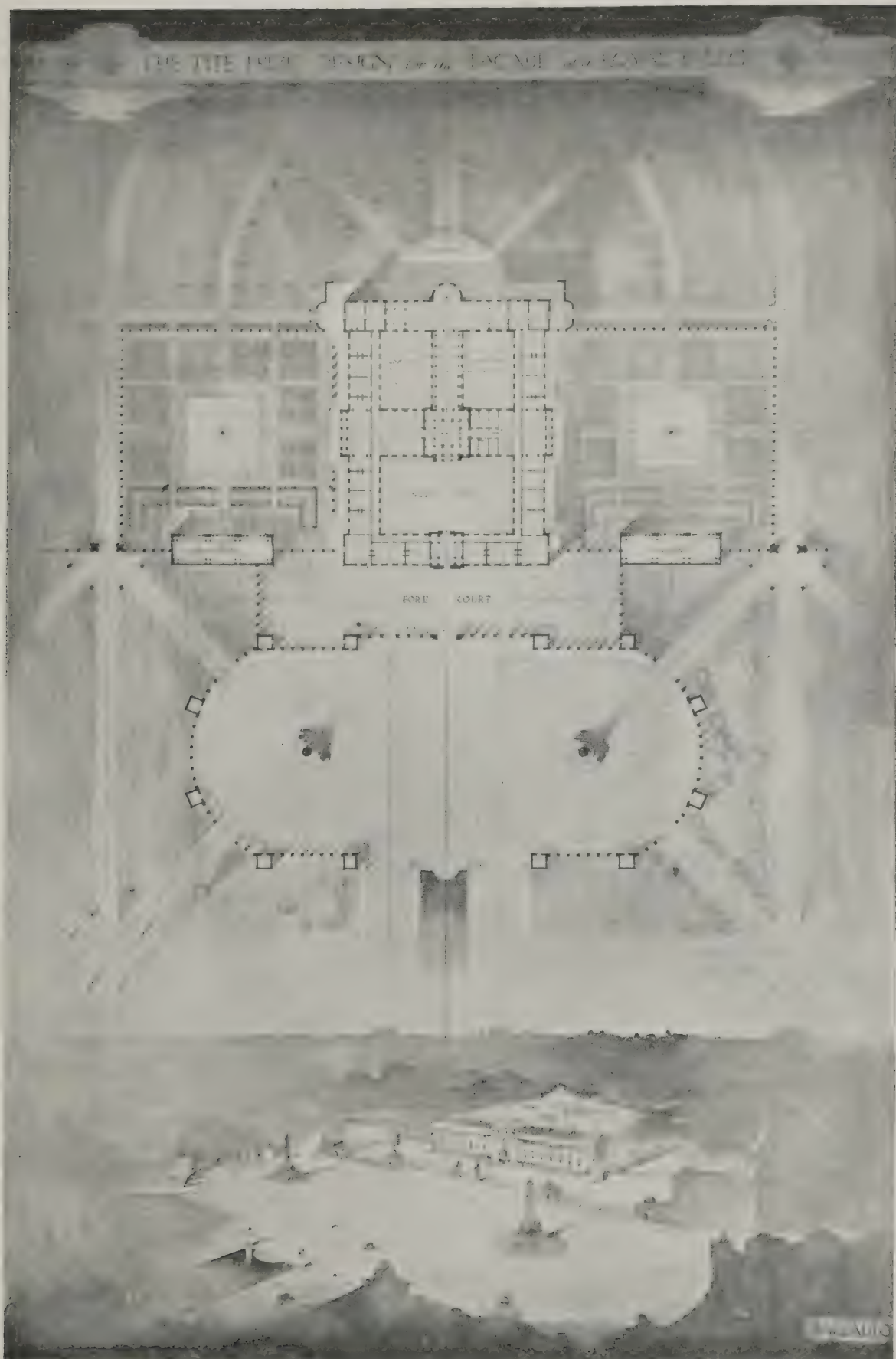
OF A ROYAL PALACE

EIGHTH SCALE DETAIL

BY CYRIL A. FAREY.







TITE PRIZE DESIGN. BY CYRIL A. FAREY.

(See page 113.)

OF THE  
UNIVERSITY OF ALABAMA





SOANE DESIGN FOR A TERMINAL RAILWAY STATION. BY H. C. BRADSHAW (Horn. M. n. 113.)

(See page 113.)

OF THE  
UNIVERSITY OF ILLINOIS





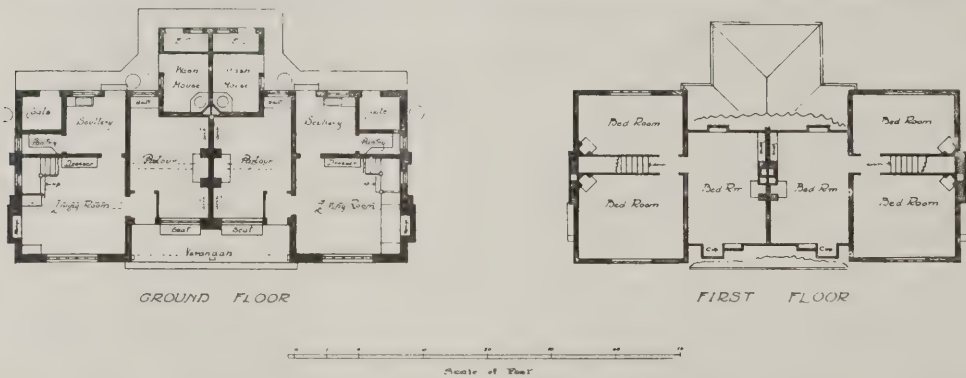
DETAIL OF SCULPTURE ON THE OPERA HOUSE, PARIS—II.

(See page 110.)









MODERN SMALL HOUSES. XIV.—COTTAGES AT BERKSWELL, WARWICKSHIRE.  
C. M. C. ARMSTRONG, ARCHITECT.  
(See page 116.)



## COMPETITIONS.

*Elementary School, Newtown.*

Mr. H. C. Charlewood, F.R.I.B.A., the assessor in this competition, which was for an elementary school at Newtown, for the Carlisle Education Committee, has made the following awards, which have been accepted by the committee: 1, Messrs. Oliver and Dodgshun, F.R.I.B.A.; 2, Mr. T. Taylor Scott, F.R.I.B.A.; 3, Messrs. Oliver and Dodgshun, F.R.I.B.A.; 4, Mr. J. W. Benwell, A.R.I.B.A. The architects' estimate of the cost of carrying out the first design is within the amount prescribed by the committee—£6,500.

## LIST OF COMPETITIONS OPEN.

JANUARY 31.—MUNICIPAL BUILDINGS, JAMAICA.—For an open competition, in which a premium of £100 is offered for the design of municipal buildings to cost £9,000, particulars, price 2s., may be obtained from Messrs. Young, Ltd., 60, Fenchurch Street, E.C.

JANUARY 31.—HOUSING SCHEME, HEMEL HEMPSTEAD.—Premium, £20. Particulars (£1 is.), Town Clerk, Hemel Hempstead.

FEBRUARY 3.—COUNCIL SCHOOL, HARROGATE.—The Borough of Harrogate Education Committee invite designs for an elementary school for 675 children. Particulars, C. E. Rivers, A.M.I.C.E., Borough Engineer, Harrogate.

FEBRUARY 8.—MUNICIPAL BUILDINGS, DUBLIN.—Restricted to practitioners in Ireland. Cost, £55,000. Author of selected design to supervise work. Second premium, £150; third, £100. Assessor, Mr. Albert H. Murray, F.R.I.B.A. [The time has been extended from that originally announced.]

FEBRUARY 22.—TRAINING COLLEGE, GLASGOW.—Limited to six selected architects.

FEBRUARY 26.—DECORATIVE FIGURE COMPOSITIONS.—The Academy of Fine Arts, Bristol, invite competitive sketch designs for painted decorative figure compositions to fill four segmental lunettes under the dome. The selected artist to receive £500 for the work. Assessors, Messrs. Beresford Pite, W. R. Lethaby, and Gerald Moira. Sections to be seen at the office of the architect, Mr. S. S. Reay, F.R.I.B.A., 47, Milsom Street, Bath. Designs to be sent to Professor Beresford Pite, F.R.I.B.A., Royal College of Art, South Kensington, S.W.

MARCH 1.—MUNICIPAL BUILDINGS, RANGOON.—The Committee of the Municipality of Rangoon, Burma, invite architects to a competition for the designing and supervising of new municipal buildings. Premiums, £300, £200, and £100. Supervision may be delegated to a local firm of architects. Particulars £1, returnable from the London agents, Messrs. Ogilvy, Gillanders, and Co., Sun Court, 67, Cornhill, E.C.

MARCH 1.—CITY HALL, WINNIPEG.—Limited to British Architects in Canada. Assessor, Mr. Leonard Stokes, F.R.I.B.A.

MARCH 1.—ROYAL PALACE AND LAW COURTS, SOFIA.—Particulars of this competition are obtainable from the Commercial Intelligence Department, Board of Trade, Basinghall Street, E.C.

APRIL 18.—SECONDARY SCHOOLS, READING.—Reading Education Committee invite designs for Kendrick Boys' and Girls' Secondary Schools from architects within

the borough. Premiums, 70 guineas and 30 guineas. Particulars, Education Office, Blagrave Street, Reading. Mr. Ernest Newton, A.R.A., F.R.I.B.A., is the assessor.

APRIL 29.—MUNICIPAL OFFICES, BARNET.—Barnet Urban District Council invite designs for new municipal offices, to be erected at a cost not exceeding £4,000. Premiums, £25, £15, and £10. Particulars from Mr. W. F. Wilkins, M.S.E., 40, High Street, Barnet. Designs to be delivered to Mr. H. W. Poole, Council Offices, 40, High Street, Barnet.

NO DATE.—KURSAAL, FOLKESTONE.—Cost not to exceed £29,000. Premiums, 100, 50, and 25 guineas; premiums of accepted design to merge in fees. Apply to Town Clerk, Folkestone.

## OBITUARY.

*Mr. George Enoch Grayson's Estate.*

Mr. George Enoch Grayson, of Greenbank, Egerton Park, Rock Ferry, Cheshire, for many years leading architect in Liverpool, a former president of the Liverpool Architectural Society, designer of the City of London Liberal Club, and of numerous churches and public buildings in Liverpool and the neighbourhood, a freeman of the City of London, and a member of the Court of Assistants of the Tinplate Workers Company of London, who died November 7th, aged seventy-eight, left estate valued at £55,750 gross, with net personalty £54,074.

*Mr. T. H. Watson, F.R.I.B.A.*

Mr. Thomas Henry Watson, of 9, Nottingham Place, W., and 5, Akenside Road, Hampstead, who died on January 13th, at the age of seventy-three, became an Associate of the Royal Institute of British Architects in 1862 and was elected a Fellow in 1877. He was Soane medallist in 1864. In 1901 he was elected representative of the Institute on the council of the Royal Architectural Museum and Westminster School of Art; he was also a member of the Architectural Association, of which he was president for 1870 and 1871. His work included the churches of St. Peter, Cricklewood, and St. Luke, Deptford; Whitney Court, Herefordshire; the upper part of the Oriental Club, and a large improvement scheme for Captain Penton in Pentonville. He was also the author of several schemes for working-class dwellings in various parts of London. As district surveyor for St. George's, Hanover Square, he used his opportunities to make a close study of the qualities of reinforced concrete. He was president of the London District Surveyors' Association in 1905-6, and in 1907 its representative on the joint committee of the R.I.B.A. on reinforced concrete.

*Mr. Francis James Smith, F.R.I.B.A.*

The death is announced of Mr. Francis James Smith, F.R.I.B.A., in his sixty-eighth year. As architect to the Shoreditch Guardians he carried out the Hornchurch Cottage Homes and the Nurses' Home at Shoreditch Workhouse, and as architect to Paddington Guardians he carried out extensive works, comprising the new board room and offices, receiving and casual wards, and the reconstruction of the Harrow Road Workhouse, also the Nurses' Home and Dispensary buildings. As architect to the St. George's, Hanover Square, Guardians, the St. Leonard's, Shoreditch, Board, and the Bromley Union Board, he also carried out extensive alterations and improvements.

## LEGAL.

*Marble for the Queen Victoria Memorial.*

At the Royal Courts of Justice, Messrs. J. Whitehead and Sons, Ltd., of Kennington Oval, sued Sir Thomas Brock, the sculptor, to recover £660, balance of an account alleged to be due for marble supplied and erected for Queen Victoria's Memorial outside Buckingham Palace. The defendant denied indebtedness.

Mr. Morle, for the plaintiffs, said that they undertook to supply Sir Thomas with what marble was required for the Memorial. The contract price was £6,500, and the plaintiffs obtained the marble from Carrara, Italy. The plaintiffs' case was that, owing to various alterations made to portions of the memorial, they had to supply and erect extra stones for which they ought to be paid.—The defendant's case was that in the aggregate he had paid the plaintiffs £6,850, and that he had consequently overpaid them. Alternatively it was pleaded that any new stones that were supplied by the plaintiffs were covered by the contract price—£6,500.

Evidence having been called by the plaintiffs, Mr. Heber Hart submitted that there was no case to answer. The Official Referee (Mr. Edward Pollock) upheld this submission, and entered judgment for Sir Thomas with costs.

*Architects' Fees for Work Not Executed.*

In the Court of Appeal, on January 16th, before the Lord Chief Justice, Lord Justice Farwell, and Sir Samuel Evans, two appeals, the one by Messrs. Stott and Sons, architects, of Manchester, and the other by Mr. A. H. Stott (a member of the firm) against a decision by Justices Ridley and Bray, in a Divisional Court in July last, was heard.

Mr. Martelli, K.C., who appeared for the appellants, said that the case came up in the course of the winding-up of the Pansy Spinning Co., Ltd. The company was incorporated in October, 1907, with £100,000 capital, in 20,000 shares of £5 each. It was formed on the top of a boom in the cotton trade, but unfortunately after that time there was a slump in the trade, and the company did not proceed to build the two cotton mills at Wigan for the establishment of which they were incorporated. Soon after the incorporation of the company the directors passed a resolution to appoint Messrs. Stott and Sons the architects, at a commission of 5 per cent. on the cost, for the two mills which the company intended building. Although the mills were not built, Messrs. Stott did a great deal of work in the preparation of plans, etc., and on this account the judge had decided that they should receive £250; but there was also a claim of some £8,475 for architects' fees. Mr. A. H. Stott, who was a member of the firm of Stott and Sons, lent the company £1,500 to pay the firm the reduced sum of £1,500 for fees, and subsequently, when the company went into liquidation, the Official Receiver said the only sum that Messrs. Stott and Sons were entitled to was £250 in respect to work already done, and he said the £1,500 which had been already paid was to be set off against the £250 due to them. The case went before the Wigan County Court on the two claims, one by Messrs. Stott and Sons for architects' fees and the other by Mr. A. H. Stott for the £1,500 lent to the company and for other matters. The County Court Judge held that the Official Receiver was right. The grounds of the



claim by Messrs. Stott and Sons were that by a resolution of the directors taken in conjunction with the memorandum of association a contract was made by the directors with Messrs. Stott and Sons that they should be the architects for the building of two spinning mills, and, circumstances having prevented this and the company having prevented the appellants from earning their fees, the company were liable in damages to the architects. The county court judge held that there was no valid contract to pay Messrs. Stott 5 per cent. on the total cost of the mills in question. He accordingly rejected the proof of £8,475, and ordered the appellants to pay the costs. In the case of Mr. A. H. Stott's claim, the county court judge held that the money should not have been paid to Messrs. Stott and Son, and he held that the money paid should be set off against the £250 awarded the firm. The case was appealed to a Divisional Court, and there Justices Ridley and Bray supported the findings and judgment of the county court.

Mr. Martelli argued the case at great length, contending that the Courts below were wrong.

Without calling on the respondents, the Lord Chief Justice said the appeal must be dismissed, as in his opinion the judgments in the Courts below were correct. It was quite impossible to say that a valid contract was made when a company appointed a firm of architects for building certain proposed buildings, and that by a resolution to appoint architects they rendered themselves liable to damages if they did not build. There was no contract, but an ordinary arrangement that certain persons should be architects to the company and should do certain work on specified terms. On the other ground, as to the money lent, he agreed with the opinion of the judges below.

Lord Justice Farwell and Sir Samuel Evans concurred, and the appeal was accordingly dismissed with costs.

## SOCIETIES AND INSTITUTIONS.

### INSTITUTE OF SANITARY ENGINEERS.

Mr. H. Percy Boulnois, delivering his presidential address to the Institute of Sanitary Engineers at a meeting held in Caxton Hall last week, said that a great many improvements in the removal of our dry waste products still remained to be carried out, for although considerable advances had been made in the temporary storage of house refuse, and its ultimate disposal by burning, the method of collection was practically the same as it was forty or even fifty years ago. No one would have the temerity to say that tipping the contents of open receptacles into open carts was the highest form of sanitary procedure. The proper housing of what one may call the "lower classes" was still an unsolved problem. Many efforts at improvement had been thwarted by the dirty habits of those whom sanitary engineers desired to benefit. Although the ventilation of our dwellings and public buildings had been greatly improved, there was still plenty of scope for investigations, and advances, in that branch of sanitary engineering. In regard to town-planning, he said that the first principles were that the water supply and sewerage should be properly designed. That involved very careful levelling and contouring. The proper width and construction and alignment of

the roads was next in importance. Then came the question of open spaces. Housing of the working classes was surely also a question for the sanitary engineer, and also the number of houses per acre that should be allowed. The provision of schools and the space that should be allowed for these required consideration, and also the space required for cemeteries, conveniences, public baths, sanatoria, or hospitals, abattoirs, and many other provisions were all matters that come within the scope of the sanitary engineer.

### NATIONAL FEDERATION OF BUILDING TRADES EMPLOYERS.

At the annual general meeting of the National Federation of Building Trades Employers of Great Britain and Ireland, which is being held to-day (Wednesday, January 29th) in the Balmoral Room of the Trocadero Restaurant, Piccadilly Circus, London, W., beginning at 10.30 a.m., the thirty-fifth annual report will be presented. In this it is observed, as to the state of trade, that while there appears to be some improvement in the amount of inquiry, recovery is proceeding very slowly, and in those districts where speculative building is largely carried on depression still prevails. There has been a marked fall in the number of plans passed by local authorities for the erection of dwelling-houses (it began in 1909 and has continued ever since), the figures published by the Board of Trade showing that on approximately equal population the decline in regard to dwelling-houses was over 10 per cent. comparing 1910 and 1911, and a decline of 20 per cent. in regard to the same class of buildings comparing 1910 and 1912. This decline is the more remarkable when it is noticed that during the same periods there was an increase in regard to other classes of building of 37 per cent. and 48 per cent. respectively. It is further noted that while unemployment generally is as low as ever recorded, showing the great prosperity of the national trade as a whole, yet in the building trade there was a small increase of unemployment as compared with a year ago.

The report records that the Institute of Builders has placed before the Royal Institute of British Architects the draft of a proposed form of sub-contract for use where specialists are employed, and that the matter is under consideration by that body. A sub-committee of the Administrative Committee of the Federation has had under consideration certain suggestions for an amendment of Clause 30 of the Agreed Form, and will report on it to the Executive Committee and the general meeting. Negotiations are still proceeding with the Institution of Municipal and County Engineers on the question of an arbitration clause in municipal contracts.

The report deals also with the Federation interests in the National Insurance Act, the Railways Bill, the Workmen's Compensation Act, Finance Act valuations, the proceedings of the Employers' Parliamentary Council, the Bankruptcy Bill, the fair contracts clause, the Land Enquiry Committee, and other matters of current interest and importance. With regard to provisional sums in quantities issued for various works, attention is drawn to their excessive proportion, particularly in relation to schools and public buildings; and consideration has also been given to the question of inserting items in bills of quantities to cover the cost of Workmen's Compensation and National Health Act insurances.

### LONDON MASTER BUILDERS' ASSOCIATION.

A meeting of the Council was held at Koh-i-Noor House, Kingsway, W.C., on Thursday, January 16th, the chair being occupied by Mr. James S. Holliday, president.

Before the business on the agenda was taken, the President moved that the hearty congratulations of the Council be conveyed to Sir Herbert H. Bartlett, Bart., an esteemed member and past president of the Association, upon the honour recently conferred upon him, and this having been seconded by Mr. William Shepherd, was agreed to unanimously, and instruction given that it be recorded on the minutes.

Reports from the special committees were received and approved.

The various questions in respect to the Board of Trade Courts of Referees and the forms issued from the Local Offices in connection with Part II. of the National Insurance Act, 1911, were carefully considered, and instructions given to issue a circular letter to members in respect to the latter.

Correspondence relating to trade matters was read.

Nominations of Messrs. Todd and Newman, Stannard Road, Hackney, and Messrs. A. Roberts and Co., Ltd., Earl's Court Road, S.W., as ordinary members, were accepted.

### THE SARDIS EXCAVATIONS.

Sir Arthur Evans, President of the Society for the Promotion of Hellenic Studies, took the chair last week, when Mr. W. H. Buckler read a paper on the "American Excavations at Sardis," which were carried on in the years 1910-12 and are not yet completed. Mr. Buckler pointed out that Sardis owed her greatness to the natural wealth of Lydia, still more to the fact that the citadel commanded the great trade routes. Sardis was built on the main Hittite road—the "royal road" of Herodotus—at a point where one branch went to Ephesus, a second to Cyzicus, a third to Smyrna, and a fourth to Phocæa. The period of her greatness was the Second Millennium B.C., but she remained an important provincial city after conquests by Persians, Macedonians, and Romans. Sardis was independently rich owing to mineral wealth, became a centre of all the arts savouring of delicate living, had her own gold and silver coinage, and perfumes, and was known to Pliny as being distinguished in music and literature. The burning by the Ionians and Athenians in 499 B.C. of the Temple of Artemis led to the Persian invasion of Greece and the battles of Marathon and Salamis. The present temple was, when built in 400-350 B.C., second in size only to that of Ephesus. The preservation of the ground-plan and main (east) front, with colonnades, made it the finest example extant of a Greek temple on such a huge scale. Excavations made in the necropolis on the hills west of the Pactolus River had yielded fine gold, silver, and bronze ornaments, many engraved seals, and some pottery dating back to the period of Croesus. The most important finds were about a dozen inscriptions in Lydian script, among them a Lydian-Aramaic bilingual (Fourth Century B.C.), the first clue to the Lydian language.



# CONCRETE AND STEEL SECTION.

(MONTHLY.)

## CONCRETE IN ITS LEGAL ASPECTS.\*

BY W. VALENTINE BALL, M.A.,  
BARRISTER-AT-LAW.

THE author was prompted to prepare his paper by the fact that he recently came across a contract for the erection of large works which involved the use of 30,000 tons of cement. It therefore occurred to him that the clauses as to concrete and reinforced concrete which appear in engineering and building contracts are by no means a negligible part of these documents.

About one-half of the paper was occupied in a careful consideration of the legal points relative to the relations between owner, contractor, and sub-contractor, with special reference to sub-contracts. More specific references to reinforced concrete will be found in the following extracts:

### *Use of Material on the Site.*

It may well be that in some cases the builder or other person who has to provide concrete will find a large bed of gravel or other useful material on the site. How far can he use it in the fulfilment of his contract?

An obligation upon a contractor to clear away old materials does not necessarily vest those materials in him. Again, where a contractor is bound by his contract to excavate, the materials excavated do not necessarily vest in him. On the contrary, if a contractor makes use of materials supplied to him, the employer may set off their price against the amount due under the contract. For instance, in one case the plaintiff contracted to do certain work for the defendant and to find the materials. The defendant supplied part of the materials which the plaintiff made use of in the work. It was held that the defendant was entitled to deduct the value of the materials supplied by him from the contract price (*Newton v. Forster*, 1844, 12 M. and W. 772).

The importance to the employer of some clause dealing with old materials lies in the fact that if nothing is said about them the contractor may remove them. Having removed them, he may sell them. In that case, if he were to become bankrupt, the employer could not get the goods back, but would be relegated to his right of proving for their value in the contractor's bankruptcy.

Where the contract for erecting a building or executing other works makes no reference to old materials, it seems that the contractor will be under an implied obligation to clear them away. There is no English case directly in point, but the principle has been laid down in several American cases. In one of these (*Shipman v. District of Columbia*, 1886, 119 N.S. 12 (Davis, 148)) a contract provided for the construction of a wall at so much per cubic yard. Nothing was said about the excavations for the wall. It was held that no extra pay could be recovered for making them.

### *Importance of Providing for the Removal of Old Materials.*

It is well for every contractor who has undertaken works which involve the clearance of a site to take care that he is adequately protected. The removal of a large mass of concrete would be a long and costly operation, while to remove reinforced concrete, knit together with ribs of steel, is the labour of Titans. When the time arrives for the removal of modern buildings, it is clear that the contractor must needs regard clearances as a very important item when considering the amount of his tender.

### *Express Provision for Materials on Site.*

In drawing his specification, the architect often inserts a clause to the following effect:

Materials on the site to be used as far as possible.

If a tender is made by a contractor on the basis of such a specification, the architect should take care to ascertain whether the contractor has made any deduction in respect of old materials. If the contractor, having made no deduction, uses any of the materials, the architect may set their value off against the contract price; and even if the contractor has made a deduction, but has not informed the architect of the fact, there may still be a set-off. For instance, in *Harvey v. Lawrence*, 1867, 15 L.T.N.S. 571, the plaintiff, a builder, sued for the sum of £800, the contract price payable on completion of the works. The architect had certified that the work was completed. The contract contained the following clause: "All old lead to be displaced by new is to become the property of the contractor, who will make a due allowance for the same." The defendant employer pleaded a set-off of £38, the value of old lead. It was held that as the contractor could not prove that he informed the employer or the architect that in making his estimate he had allowed for the value of the old lead, the set-off was good.

### *Clause to Provide for the Use of Old Materials.*

The following is a convenient form of clause: "All materials upon the site or upon the space to be covered by the buildings [or contract works] at the date of the contract, and all materials and things excavated by the contractor from the works, shall remain the property of the employer until paid for by the contractor. Such of them as shall be approved by the architect for the purpose of the works shall be paid for by the contractor at a price to be named in his tender or, if not named, to be ascertained by the architect, and all other materials shall be removed by the contractor from or deposited, stacked, or spread on the site as where and when directed by the architect."

This clause may probably be inserted in a contract which involves the making of concrete, because it is necessary that gravel, etc., to be used should be approved by the architect.

### *Provision for Water.*

Another question of importance is the provision of an adequate supply of water.

Where there is a good supply at hand in the mains no difficulty need arise. The question will simply be, Is the employer or the contractor to pay the water rate during the work of construction? But if there is no municipal or other supply the difficulty may have to be met by sinking a well or pumping from a lake or river. Suitable clauses must be inserted in the contract to place the burden of pumping or well-sinking on the right shoulders.

### *Right to Reject Materials.*

It is important to consider the question whether the architect has the right to reject improper materials when brought on to the works. In this regard the provisions of the R.I.B.A. form appear to be fairly satisfactory. (But see *Adcocks Trustee v. Bridge R.D.C.*, 1911, 75 J.P. 264.)

### *Supervision when Concrete being Laid.*

Concrete is a matter which may require some supervision on the part of the architect. To cover up wet concrete may involve serious disaster, and it seems that, in the conduct of ordinary building operations, it is the duty of the architect to attend to this matter; although in some respects he is an arbitrator, he is also a servant to the building-owner or employer.

If it is true that dry-rot is a defect which will occur in any house, however it may be constructed, it is clear that liability to put it right cannot be fixed upon anyone unless it is specially provided for in the contract. But in the few cases which have been before the courts it has been assumed or proved that dry-rot is a defect which may be caused or brought into existence by bad design—chiefly in matters relating to ventilation—or by bad supervision in the construction of works.

The fact that an architect may be held liable for negligence for passing bad work is illustrated by a case where the plaintiff employed a builder to build a house for him in accordance with certain plans. The builder was to be paid on the certificates of the defendant, who was the plaintiff's architect. The defendant certified, and the plaintiff accordingly paid the builder. This action was brought by the plaintiff, who alleged that in consequence of the defendant's negligence in superintendence the house was not built in accordance with the contract. The jury found a verdict for the plaintiff.

The fact that an architect may be held liable for dry-rot has been clearly established in a Scotch case which is noted in "Emden's Building Contracts," 4th ed., p. 78. There a builder was employed to build a house to the specification of the defendant, an architect. No clerk of the works was employed. Many months after the completion of the work the whole ground floor became infected with dry-rot. The building owner made a claim upon the builder, who denied all liability. He then brought an action against the architect, claiming damages for negligence. The Court of Session in Edinburgh held that the architect was liable.

A very similar decision was arrived at in the King's Bench Division in relation to the building of an asylum for the Leicester Board of Guardians.

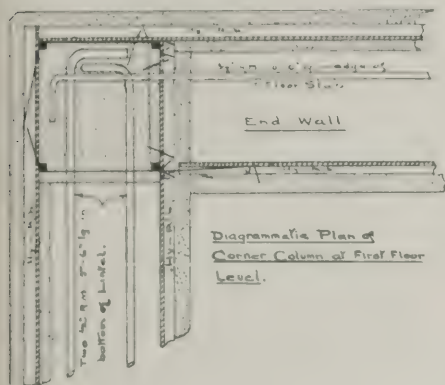
\* Extracts from a paper read at the thirtieth ordinary general meeting of the Concrete Institute, at Denison House, 296, Vauxhall Bridge Road, Westminster.







rooms on the first floor. All five cottages have been built at the cost of Mr. Gilbert Harrap, of Farnham, Kent, and complete satisfaction has been given. It is obvious that concrete is to be a material factor in solving the problem of housing the working classes. The experiment, it is stated, is likely to have considerable effect upon



municipal housing schemes, not only in Merthyr but throughout the Principality.

The Corporation of Merthyr already owns nearly 300 houses, and the erection of many more is contemplated. The majority of these houses, however, are rented at a figure far beyond the means of the labouring classes; and until the need is satisfied for a small house at a rental of about sixteen shillings a month, the housing problem in the locality cannot be said to have been solved.

## IN PARLIAMENT.

(By Our Press Gallery Representative.)

### St. Paul's Cathedral.

In the House of Commons last week,

Mr. Kellaway asked the Home Secretary whether he had decided to hold an inquiry into the danger to St. Paul's Cathedral from motor omnibus traffic, by whom such inquiry was to be held, and whether the results of the inquiry would be laid before the House.

Mr. McKenna replied that he was consulting the National Physical Laboratory as to the possibility of their undertaking a series of tests with the object of estimating the amount of vibration caused by motor and other traffic at different periods of the day in the streets adjoining the cathedral, and the effect, if any, on the fabric. He was unable to make any further statement at present.

### The New Delhi.

Mr. King returned again to the subject of the planning and building of the new city of Delhi. He asked whether consideration had been given to the statement to which Mr. E. L. Lutyens, a member of the Delhi Town Planning Committee, and other distinguished architects had given their names, that architectural design in this country was not on a sound theoretical basis, and whether, in view of the proposals for establishing a practical school of architecture in this country on lines adopted in France and operative for centuries in India, where master builders were practical craftsmen and co-operated with workers who were responsible both for design and execution in their work, the Secretary of State would proceed to secure the services of the best practical master builders in India to assist in arriving at a decision concerning the architecture of the new Delhi.

Mr. Harold Baker said the Secretary of State agreed that regard should be had to consider Indian opinion before decisions were taken respecting the architectural style to be adopted for, or the method of carrying out, the buildings of the new capital at Delhi, but he was not disposed to follow the suggestion of Mr. King.

Mr. King asked whether the past and present work of Indian master builders, as shown by the material collected by the Archaeological Survey of India, would be considered, and whether architectural experts with practical Indian experience would be consulted.

Mr. Baker said the hon. member might rest assured that the precautions he suggested would be taken.

### New Government Buildings at Edinburgh.

Mr. Wedgwood Benn has informed Mr. Whyte that there is no truth in the rumour that other sites than that of the Calton Prison, Edinburgh, are in view for the erection of the new Government Buildings. A number of questions were addressed to Mr. Benn with regard to the new buildings, but the replies contained no fresh information. The Secretary for Scotland stated that no order had yet been made to discontinue the Calton Prison.

### Farm Buildings.

Captain Clive asked the President of the Board of Agriculture whether, in view of the interesting but incomplete nature of the report by the Departmental Committee on the duration of buildings, he would consider the desirability of reappointing the same or a stronger committee with wider terms of reference to collect all information regarding materials and methods of construction and methods of increasing the durability of farm buildings and fencing.

Mr. Runciman replied that the Committee was appointed for the specific purpose of inquiring and reporting as to the probable duration of buildings. He appointed at the same time a Committee with a much wider reference to consider comprehensively and in detail other questions relating to the construction of farm buildings. The report of the latter Committee was expected shortly.

## NEWS ITEMS.

### Hastings Pier Improvements.

Hastings Town Council have decided to purchase the shore end of the pier, and to extend the parade seaward. Additional



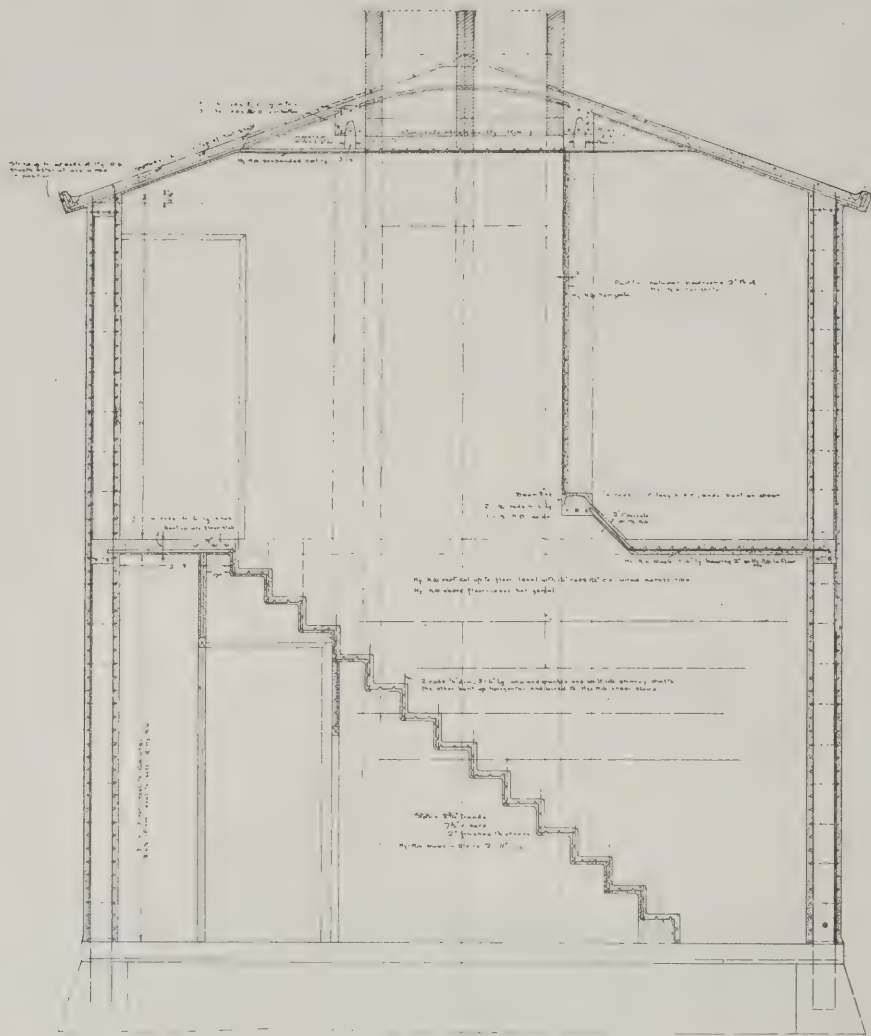
View of a Completed Cottage.



View showing Hy-Rib Sheathing.

CONCRETE COTTAGES, MERTHYR.





Cross Section.

## CONCRETE COTTAGES, MERTHYR.

band accommodation will be provided, and seating for 2,000 persons. These improvements, and the provision of a large covered promenade, are estimated to cost £20,000.

*Change of Address.*

Mr. F. Malcolm Burr, P.A.S.I., architect and surveyor, has removed his offices to No. 2, Finsbury Square, E.C., and his telephone number will be 9068 London Wall.

*Lime Quality "Pudlo."*

With respect to the correspondence, recently published in our columns, concerning the repair of old buildings with new stone and Portland cement, Messrs. J. H. Kerner-Greenwood and Co., of King's Lynn, write to say that, in addition to the "Pudlo" waterproofing powder made for use with Portland cement, they manufacture also a lime quality of the material, which ensures perfect watertightness. Full information will be forwarded by Messrs. Kerner-Greenwood on request.

*A Scarborough Town-Planning Scheme.*

Mr. Thomas Adams, Local Government Board Inspector, held an inquiry at Scarborough recently into an application by the Scarborough Town Council for authority to prepare a town-planning scheme. The Town Clerk (Mr. Sydney Jones) said the scheme embraced only 40½ acres of land on the northern extremity of the borough boundary and near the new im-

provements at Peasholme Park. The inspector remarked that it was a small area for a town-planning scheme for a town the size of Scarborough. The Borough Engineer said it might be taken for a beginning. The committee in charge had requested him to consider other sites. There was no opposition, but it was intimated that the details were still subject to negotiations.

*An Official Architect for Swansea.*

The Swansea Corporation has decided on the appointment of a permanent official architect at a salary of £500 a year. The corporation have an extensive housing scheme in view, on which a beginning is to be at once made by the preparation of plans for fifty houses. These plans it was resolved to invite Mr. H. C. Portsmouth to prepare.

*Callender's Waterproof Lining at Olympia.*

One of the chief attractions at the Children's Welfare Exhibition recently held at Olympia was a model boating lake 120 ft. long by 30 ft. wide. It was lined throughout with Callender's sheeting and so rendered watertight. This method of safeguarding water spectacles is not new to Olympia; on many previous occasions Messrs. George M. Callender and Co., Ltd., of 25, Victoria-street, London, S.W., have supplied and fixed their special lining with entirely satisfactory results.

As shown by their latest illustrated cata-

logue (obtainable gratis on application), Messrs. Callender have waterproofed ponds, lakes, reservoirs, aqueducts, and similar constructions in all parts of the world. This system, which was originated by the firm some forty years ago, is both economical and effective; and the adaptability of the material should make it worthy of consideration wherever ornamental ponds or miniature lakes are contemplated.

*New Reservoir for Merthyr.*

Merthyr Corporation have resolved to accept the tender of Messrs. McAlpine and Sons, Westminster, for the construction at Pontsticill of a new reservoir at a cost of £232,000. The undertaking is to provide storage of 3,300,000 gallons.

*New School at Kingston-on-Thames.*

The Surrey Education Committee has approved a scheme for the erection of a new secondary school on the unenclosed portion of the Fairfield at Kingston-on-Thames to replace the existing Tiffin Boys' School. The school will be next to the Carnegie Free Public Library.

*St. Bartholomew's Hospital Surveyorship.*

Mr. H. Edmund Mathews, F.R.I.B.A., has been appointed surveyor to St. Bartholomew's Hospital, in succession to the late Mr. E. B. I'Anson, F.R.I.B.A., F.S.I. Mr. Mathews was born in 1868, the eldest son of Mr. J. Douglass Mathews, F.S.I., F.R.I.B.A., with whom he is in partnership in the City, where he represents the third generation of the firm. He was educated at the Merchant Taylors' School, and gained many prizes at the London Architectural Association's School, and also at University College. He was elected a Fellow of the Royal Institute of British Architects in 1906. He has designed City and other buildings, including a hospital at East Grinstead, a convalescent home at Clacton-on-Sea, branches for the Capital and Counties Bank, and many country residences in Surrey and Sussex, as well as Hampstead houses and various public schools.

## COMING EVENTS.

## Thursday, January 30.

Architectural Association Camera, Sketch, and Debate Club.—Annual Dinner, Café Monico, 7 p.m.

Concrete Institute.—Dr. J. S. Owens on "The Settlement of Solids in Water and its Bearing on Concrete Work," at 7.30 p.m.

Polytechnic, Regent Street, W.—Mr. Mervyn E. Macartney, B.A., F.S.A., F.R.I.B.A., on "The Three Cathedral Churches of St. Paul in London." 8 p.m.

## Friday, January 31.

Leicester and Leicestershire Society of Architects.—Mr. A. S. Jennings on "Modern Progress in Paints and Painting."

## Monday, February 3.

Royal Institute of British Architects.—President's Address to Students, 8 p.m.

## Wednesday, February 5.

Guild of Architects' Assistants.—Mr. Cyril E. Power, A.R.I.B.A., on "Architectural Education in L.C.C. Technical Schools," Room 22, St. Bride Foundation, Bride Lane, Fleet Street, E.C., at 7.30 p.m.



# THE ARCHITECTS' & BUILDERS' JOURNAL.

Wednesday, February 5, 1913.

Volume XXXVII. No. 943.

No. 19.



*A. Milord Marchese di Carmar.  
amatore delle belle arti  
In segno d'obbligo al Cavaliere Gio: Battista Piranesi 27.2.77*

(From Piranesi.)



BUSINESS PREMISES, DUKE STREET, LONDON, W.  
E. VINCENT HARRIS AND THOMAS A. MOODIE, A.A.R.I.B.A., ARCHITECTS.



# THE ARCHITECTS' & BUILDERS' JOURNAL.

FEBRUARY 5, 1913.

CAXTON HOUSE, WESTMINSTER.

VOLUME 37. No. 943.

## The Delhi Architects.

THE official announcement that Mr. E. L. Lutyens and Mr. Herbert Baker, with Sir Swinton Jacob co-opted, have been appointed architects for Government House "and another important building" in the new capital at Delhi has been a leading topic of the past week. We have always assumed that Mr. Lutyens would in due course be commissioned to prepare designs, but the appointment of Mr. Baker as joint-architect with him was quite a surprise. Mr. Lutyens's work is too well known to need any comment in these columns; Mr. Baker's is not so familiar, but those who have seen some of the excellent buildings for which Mr. Baker has been responsible in South Africa will recognise the qualities which make his selection for Delhi a very admirable one. Both Mr. Lutyens and Mr. Baker, it need hardly be said, are brilliant men, and the work of each is individually remarkable, but their executed designs are quite diverse in character, and we cannot see how two such individualists are to be fused. Sir Swinton Jacob, though he has acted as engineer and architect to several important native States, will, in this case, we assume, be more a figure in the background, a consultant on local and practical requirements, than a third designer.

Reviewing the whole matter we cannot say that the appointment of Mr. Lutyens and Mr. Baker appears to us to have been happily inspired, assuming that both are working jointly on a single scheme. We should have thought that the allocation of a building to each would have been a better arrangement. But the future alone can settle this, and it may be that Mr. Lutyens's originality, coupled with Mr. Baker's declared preference for some sort of English Renaissance as the best treatment for Delhi, will be productive of two fine designs for the first buildings of the new capital.

The greatest interest has been taken in the official replies given in Parliament to one or two members who have been zealous in trying to find out from the Government what they proposed to do, and we think it opportune therefore to give now the exact terms in which the announcement referred to above was made in the House of Commons last week.

Mr. King asked the reason for the peculiar haste in making the appointment, seeing that on December 20th the representative of the India Office told the House to wait till March, as nothing could be done before that date. He asked whether the report of the Town Planning Committee would be published and whether the idea of competition had been entirely given up.

Mr. Harold Baker, replying for the India Office, said events had happened which necessitated the Viceroy taking an earlier decision than was at first thought necessary. Early in January the Secretary of State received a telegram from the Viceroy in which he suggested that Mr. Lutyens and Mr. Baker should be appointed. The receipt of that telegram was an important matter, because the Viceroy's judgment on this subject must carry great weight. Another consideration was that Mr. Baker was in

Rome, and he was under an engagement to return to South Africa in a very short time to carry out certain works which he was executing there for the Government, and it was necessary, if the Viceroy's policy was to be carried out, that Mr. Baker should anticipate his return and that the Government of South Africa should be persuaded to grant him leave to proceed to India. These were the special reasons for the Secretary of State acting without hesitation or delay. Mr. King might suggest that the choice of Mr. Lutyens and Mr. Baker was open to criticism. The first proposal that Mr. Lutyens should be appointed occurred in that telegram from the Viceroy, and it must be admitted that Mr. Baker's experience in South Africa was a very strong recommendation. They must consider the opinion of the Viceroy as of very high importance. The Viceroy had from the beginning taken a very great interest in the new capital, and it must be left largely to his judgment as to what architect should be chosen and what style of architecture should be approved. If Mr. King was in doubt as to the competence of the Viceroy in this matter, he would remind him that in March last in the course of a speech the Viceroy expressed himself as entirely in favour of the Indian style of architecture. With regard to competition, the scope of the appointment which had been given to Mr. Lutyens and Mr. Baker was strictly limited. They had been asked simply and solely to act as architects for Government House, and one other important building. It had been suggested that Mr. Lutyens had already made his plans, and that these plans had been published. That was not the case. He did not believe they were plans in the architectural sense at all, and certainly they were not final. They would be open to the criticism of his collaborator, Mr. Baker, and between them the plans would assume a shape which would be acceptable to good judgment. The two architects would be architects for those two buildings, and they would have general powers to advise on the rest of the buildings of the new City. With regard to all the rest of the buildings, except those specific two, it was the present intention of the Secretary of State as far as possible to allow competition to come in. There were obviously great difficulties in the way of having free and open competition, but so far as it was found to be possible, competition would be allowed for all the rest of the buildings, which would be very numerous and varied in character.

Now with regard to the foregoing official explanation, it seems to us that a strenuous endeavour is there made to put all the responsibility on the Viceroy, whereas on former occasions in the House we have been led to believe that the matter would be settled in this country. It is stated above that the Viceroy has declared himself "entirely in favour of the Indian style of architecture," and taking this, for the moment, as the instruction on which Mr. Lutyens and Mr. Baker will act, it is amusing to conjure up the vision of a sort of Mogul-Saracenic-



English Renaissance building: but all this is so much smoothing down of possible objections, and a very fair guess can be made of the type of design which will ultimately be set forth. Moreover, there is no "Indian" architecture, any more than there is an "Indian" nation: for the buildings of that great country which we dominate are as diverse as the religion and the character of the peoples for whom they were built.

As regards open competition, while generally in support of such a suggestion, we think that in this case it would not be productive of as good results as the appointment of a selected architect to prepare designs. The requirements of India and the buildings of the new Delhi demand an intimate local knowledge, only to be obtained by investigation on the spot, and for that reason we should say that a competition in which British architects as a body took part would be very ill-advised.

#### District Surveyors' Fees.

IT is almost in the nature of a public duty to resist the demands of district surveyors; for every case that comes into court must surely bring us a step nearer to the abolition of an intolerable system, whether or not the resistance is vindicated in law. The majority of the victims of the system choose rather to grumble and pay than to incur the worry, expense, and loss of time involved in resistance. The greater is the praise that is due, therefore, to those having sufficient public spirit to put forth this effective form of protest—levelling it, certainly not against the district surveyors, whom we believe to be a very honourable as well as a very able body of men, but against the exasperating system which invests them with their peculiar authority.

Too much publicity cannot be given to the burdensome incidence of the third schedule of the London Building Act, in which the fees payable to district surveyors are specified. It was purely on public grounds that Mr. F. F. W. Oldfield, a Camberwell printer, appeared in the Lambeth Police Court on January 27th to answer a summons taken out by Mr. Percy Hunter, district surveyor, who sought payment of £10 17s. 6d. fees prescribed by the Act. The printer occupies a building that had been erected at a cost of about £6,000, and, for the greater comfort of his workpeople, he removed a gas-engine to a structure specially erected for it outside the factory. This is quite a small building—a mere shed, 26 ft. long by 25 ft. in depth—and it cost only £72 15s. The demand for £10 17s. 6d. as surveyor's fees—more than one-fifth of the cost of construction—naturally astonished the building owner, whose object in contesting the claim was to protest in court against a serious handicap to industry. He could have had but little hope of winning his case, for he must have become aware that the district surveyor, in claiming these fees, was fortified by the provision of the third schedule of the London Building Act, 1894: "For every addition or alteration or other work to which the provisions of this Act apply, made or done to or on any building after the roof thereof has been covered in—one-half of the fee charged in the case of a new building calculated upon the area of the whole building." From this it is obvious that the district surveyor was legally justified in demanding this disproportionately heavy fee, and in the upshot the magistrate (Mr. Hopkins) ordered that it should be paid, together with 13s. 6d. costs. To the remark of defendant's legal adviser, that he did not think the legislature ever intended that the district surveyor should have such fees, which it was conceivable might in certain circumstances amount to more than the cost of the addition, the magistrate replied, convincingly enough, "I don't know what they in-

tended: I have to consider what they said," and that is precisely the justification that may be urged on behalf of the district surveyor. The fault lies with the Act, and not with those who administer it.

As to the ridiculous and iniquitous provision that for some paltry addition one-half the fee upon the area of the whole main building may be exacted, we believe that defendant's solicitor was only too correct in his surmise that in some cases the surveyor's fees might actually exceed the cost of the new work. In the case under notice, the absurdity of the position was emphasised by the evidence that if the engine-shed had been regarded as a new building, the fee upon it would have been two guineas.

The third schedule, providing for the payment of fees by the builder or building owner, and their receipt by the district surveyor, must be entirely abolished. Drastic though it may seem, that is simply a fair demand, and in insisting on it builders and property owners will find their hands greatly strengthened in proportion to the zeal with which they are prosecuted in the police-courts.

The very frequent appearance of district surveyors as plaintiffs in the courts provokes the suggestion that it is in the power of builders to extend this activity indefinitely, by a concerted refusal to pay any fees whatever. Pending more constitutional efforts, we do not recommend that course; but we certainly think that when the oppressiveness of the present system can be as strikingly shown up as it was in the case noticed above, such an opportunity is too good to be wasted in privacy. Although the issue was a foregone conclusion, no more than a Pyrrhic victory can be claimed for the system whose doom it has hastened.

#### "Land Valuation" and the Lumsden Case.

FURTHER particulars now to hand with regard to Mr. Justice Horridge's momentous decision under the Finance Act, to which reference was made in these columns last week, show that we by no means exaggerated the importance of the case. It appears that the respondent in that appeal, Mr. Lumsden, who is a builder in a large way of business in Newcastle, undertook to develop a building estate for the benefit of the employees of a colliery company, and spent about £40,000 in laying out the land and in building houses. In May, 1910, he sold a shop and house for £750. In February, 1911, Government agents valued the property, and, taking into account the sale of the shop, declared that, between April 30th, 1909, and May, 1910, the assessable site value had increased from £105 to £230, and that therefore increment duty was due on the difference. Mr. Lumsden was therefore asked to pay £25—one-fifth of the increase. What was the nature of this increase? No more clear and emphatic answer could be given than that supplied by one of the Government counsel, who admitted that the whole increase was the "builder's profit, well deserved and legitimately won." While the Act was on the anvil the possibility of this malversation was foreseen by the National Federation, and we believe that on representation then being made to Mr. Lloyd George he gave every assurance that all such fears were baseless—that the duty would not touch builders' legitimate profits. There is no reason to doubt his personal sincerity on that point; but unfortunately the legal interpretation of an Act is too often directly opposed to the intention of its author; and if, as seems probable, the Lumsden case is simply another instance of perverted issues, there need be no panic-stricken despair of a prompt remedy. As we understand that influential representations on the subject are being made in the right quarter, we for the moment refrain from further comment on this serious menace to the building industry and stultification of the Housing Acts.



## THE VITALITY OF VASARI.

GIORGIO VASARI, like so many of the early Italian artists, was an architect as well as a painter. He made the original plans of the Vigna di Papa Giulio in Rome, of which, however, the larger casino was built by Vignola, otherwise called Giacomo Barozzio. Vasari remodelled the Palazzo Vecchio and built the Palazzo degli Uffizi in Florence, built at Pistoia the cupola of the church of the Madonna dell' Umiltà (the church itself being Ventura Vātōni's chief work), at Pisa the Palazzo dei Cavalieri da S. Stefano; and at Arezzo, Badia and the "Loggie Vasari." He was Court painter to Cosimo I. de' Medici, Duke of Florence, and the most important evidences of his skill with the brush are the frescoes of the Cancellaria in Rome, and those of the Palazzo Vecchio in Florence.

He had, besides these qualifications for writing "*Le Vite de' più eccellenti Architetti, Pittori e Scultori*"—it will be observed that in translations of this title the architects are always put last!—a really considerable literary faculty, which, as the profane say of Froude's knowledge of history, greatly improved as he got on with the work, Vasari's later biographies being written with much greater ease and clearness than the earlier specimens. "Throughout the earlier lives," says his latest translator, "Vasari seems to be feeling his way. He is not sure of himself, and his style is often awkward," although in his youth he had undergone some literary training under the Aretine poet Giovanni Polastra.

Vasari was born at Arezzo in 1511, and died in 1574. The first edition of his *Lives* appeared in 1550, the second, with additions, in 1568; and the edition published at Florence, 1878-85, long held the field as the standard; but a later edition, issued under the supervision of A. Venturi, some seven years later, aimed at greater completeness. Among English versions, Mrs. Foster's translation (1888) was the most comprehensive, but Mr. de Vere regards it as a paraphrase rather than as a translation, whereas his own intention has been to render the original word for word, and to err, if at all, in favour of literalness. It is a matter in which most readers would prefer faithfulness to elegance, since closeness of rendering preserves a certain archaic quaintness which seems proper to the period. Nor is there any real reason why fidelity to a foreign tongue should result in uncouth or unidiomatic English. It must perforce differ essentially from the language in which the thought and its expression are simultaneously conceived, and the best that can be done in modern translations of old authors, as Mr. Andrew Lang was wont to declare, is to produce acceptable "Wardour Street English." To make it quite plain that he did not intend this as a term of reproach, Mr. Lang cited the Authorised Version of the Bible as a fine specimen of Wardour Street English. Mr. de Vere's translation makes smooth and agreeable reading, and we honestly think that he has not only hit upon the right method, but that he employs it with rare delicacy and skill.

The quaint revenge that Orcagna had upon some who had given him offence, as well as his way of honouring those whom he held in esteem, may be quoted as a fair specimen of the general style. In a fresco in the church of S. Croce, Florence,

He laboured therein with better design and more diligence than he had done in Pisa, holding, nevertheless, to almost the same plan in the invention, the manner, the scrolls, and the rest, without changing anything save the portraits from life; for those in this work were partly of his dearest friends, whom he placed in Paradise, and partly of men little his friends, who were put by him in Hell. . . . Among the damned he portrayed Guardi, serjeant of the Commune of Florence, being dragged along by the Devil with a hook, and he is known by three red lilies that he has on his white bonnet, such as were then wont to be worn by the serjeants and other similar offi-

cials; and this he did because Guardi once made distraint on his property. He also portrayed there the notary and the judge who had been opposed to him in that action.

About a score of *Lives* are included in this first volume, and they are preceded by the dedications (1550 and 1568) to Cosimo de' Medici, the imprimatur of Pope Pius V., the author's preface to the whole work, and his preface to the *Lives*. Those prefaces should by no means be skipped, as they reveal Vasari as a curious combination of credulity and astuteness. They record also the dispute between the sculptors and painters as to which was the superior art: Vasari moderating upon it with—

I say, then, that sculpture and painting are in truth sisters, born from one father, that is, design, at one and the same birth, and have no precedence one over the other, save insomuch as the worth and the strength of those who maintain them make one craftsman surpass another, and not by reason of any difference or degree of nobility that is in truth to be found between them.

He regards both these sisters as being handmaids of the Mistress Art—"architecture, the most universal and the most necessary and useful to men, and that for the service and adornment of which the two others exist." After this exhibition of soundness in the faith one readily smiles with indulgence on such crudities as "Cleophantes of Corinth was the first among the Greeks who used colours, and Apollodorus the first who discovered the brush." One can forgive also the rather extravagant eulogy of Michelagnolo (so rendered in the book)—

In our own age the Divine Goodness has created for us Michelagnolo Buonarroti, in whom both these arts [sculpture and painting] shine forth so perfect and appear so similar and so closely united, that the painters marvel at his pictures and the sculptors feel for the sculptures wrought by him supreme admiration and reverence. On him, to the end that he might not perchance need to seek from some other master some convenient resting-place for the figures that he wrought, nature has bestowed so generously the science of architecture, that without having need for others he has strength and power within himself to give to this or the other image made by himself an honourable and suitable resting-place, in a manner that he rightly deserves to be called the king of sculptors, the prince of painters, and the most excellent of architects, nay, rather, of architecture the true master. And, indeed, we can affirm with certainty that those do in no way err who call him divine, seeing that he has within his own self embraced the three arts most worthy of praise and most ingenious that are to be found among mortal men, and that with these, after the manner of a god, he can give us infinite delight.

Other artists having this triple qualification as painter, sculptor, and architect, whose lives are sketched in this first volume are—Margaritone, Giotto, and Orcagna; while Niccola and Giovanni of Pisa, Agostino, and Agnola of Siena, and Andrea Pisano, were sculptors and architects, and Arnolfo di Lapo of Florence comes in as an architect pure and simple. He was born in 1232, and died in 1300. Arnolfo "made the design and the model of the never-to-be-sufficiently-praised Church of S. Maria del Fiore, ordering that it should be all incrustated, without, with polished marbles and with the so many cornices, pilasters, columns, carved foliage, figures, and other ornaments, with which to-day it is seen brought, if not to the whole, to a great part at least of its perfection."

One of the reasons why Vasari endures, and at intervals blossoms forth into more or less sumptuous new editions, is to be found in his unfailing geniality and generosity. He praises everybody and everything, often not wisely but too well, and he has the knack of compelling the reader to glow with his own enthusiasm. Not that a merely pleasant sensation is all that is to be derived from his writings. His historical, biographical, and other data, whether or not they would always bear strict investigation, are always interesting; his critical views of art, whether or not they always accord with the standards of modern criticism, show



him to have been a keen observer and, according to his lights, an astute critic of men, materials, and methods; while the ana and gossip which are so plentifully introduced heighten the human interest of a work which without them might have reposed almost undisturbed in antiquarian or technical libraries, whereas, while because of his knowledge he can be consulted with profit, Vasari is also read with pleasure because of the personal charm that was his own, as well as for the personal charm which he never fails to find in the lives he sketches. He is the Plutarch of art. To rehabilitate him in ten sumptuous volumes, containing 500 illustrations, is nevertheless a courageous enterprise, showing much confidence—which we hope and believe to be fully justified—in the growing regard for art which is apparently to be a distinguishing characteristic of the present century. The first volume is finely produced, the typography being worthy of the excellent illustrations. The nine plates in colour, however, we do not like so well as the forty pictures in monochrome; but in every instance the subject has been chastely chosen.

R. D.

"Lives of the Most Eminent Painters, Sculptors, and Architects." By Giorgio Vasari. Newly translated by Gaston du C. de Vere. With five hundred illustrations. In ten volumes. Vol. I. Pages lx. + 228, 10¾ ins. by 8 ins. London: Macmillan and Co., Ltd., and the Medici Society, Ltd. Price 25s. net.

## ARCHITECTURAL CONDITIONS IN CANADA.

BY F. S. BAKER, F.R.I.B.A.

(Concluded from p. 116, No. 942.)

ALL the large centres are provided with stringent building laws, plans being passed by building departments, whose inspectors issue permits before the work is allowed to be proceeded with. A constant inspection is also made of the work during its progress by these departments. This system extends to construction and sanitation, and the relation of buildings to localities, but does not in any way interfere with the architectural or artistic qualities of the building. That the duties of these departments may be extended in the near future so as to criticise the quality of the design is not an improbability. The fact that every city is giving careful attention to town-planning, driveways, park systems, and suburbs is having an excellent moral effect in the development of the artistic tastes of the people.

### *English or American Architecture?*

An article which appeared recently in a London architectural paper made strong reference to Canada. It stated that U.S. American "ideals and methods of expression" are being appropriated by Canadians, and that "in Vancouver, Toronto, and Montreal, the largest and handsomest buildings are the works of American architects." With regard to the first statement, there is not the slightest doubt that Canadian architects have been experimenting along U.S. American lines in the designs of all classes of buildings. I can say definitely, however, that American ideals and methods of expression are not being adopted any more than those of any other country, except in so far as they apply more conveniently to conditions in Canada. In the matter of design, I believe I am right in saying that the British influence is much the strongest one affecting Canadian architects, who, generally speaking, are strong Imperialists. The other statement is, of course, misleading. I know of only two large buildings in Montreal which have been erected in the last twenty years under U.S. American architects. In Toronto, strange as it may seem, the Anglican Cathedral of St. Alban is the only building I know of which is in the hands of a U.S. American architect. Winnipeg has one bank and one railway terminal designed by New York architects. Vancouver may have a building which has been designed by a U.S.

American architect, but I am not aware of its identity. There is no reciprocity between the architects of the United States and Canada, and both are subjected to practically prohibitive Customs tariffs. In the above I do not include architects who have permanent offices in Canada as well as in New York; but if they were included, and I say it with all modesty, the works of Canadian architects far away surpass those few buildings which have been erected by foreign architects. Canadian statesmen, benefiting by past experiences of Great Britain and other nations, have taken precautions which make it practically impossible for foreigners to exploit the opportunities which Canada presents in any way except that which will most benefit Canada. Thus it is that many manufacturers of building materials residing in foreign countries and wishing to avail themselves of the Canadian market have found it desirable to establish a factory in Canada.

Having described a number of Government buildings, Mr. Baker continued: Art galleries and museums, I am sorry to say, are few in number, and are only to be found in the larger cities. The reason of this is the lack of art collections rather than the want of buildings, and it seems to me to be exceedingly desirable that the opportunity to obtain replicas of the splendid collections in the British Isles should be provided and every facility possible to obtain these reproductions given to the representatives of the various parts of the Empire in which original collections cannot be hoped for. Architectural students are suffering particularly in this respect in Canada. Those buildings which have been built are, of course, of fireproof construction, and are fairly pretentious, both as regards size and architecture. There is no doubt that many museums and art galleries will be built in the future.

In his subsequent remarks Mr. Baker gave a very careful account of various types of buildings now being erected in Canada, dwelling particularly upon the character of the materials employed.

### DISCUSSION.

Mr. Herbert Baker, of South Africa, proposing a vote of thanks, said he was very glad to hear that Canada had no intention of being swallowed up by its great neighbour—no more in architecture than in nationality. If Imperial Federation was ever to become a real fact—and Canadians had shown by their recent gift of Dreadnoughts how earnest they were—architects would have to study to give expression to that ideal. The Imperial spirit in architecture, he thought, was to be achieved, first, through the



PRINCE EDWARD HOTEL, BRANDON, MANITOBA.

PRATT AND ROSS, ARCHITECTS.



Mother Institute, and, second, through the British School at Rome. All British subjects could gain the help of that school. South Africa had a number of students there, but Canada had none—a state of affairs which he hoped would soon be altered.

Mr. J. G. Colmer, C.M.G., seconding the vote of thanks, said that, although Canada was a young country, no one could travel about without being impressed with its buildings. In Canada there was no professional jealousy, and if a young architect went there he was ungrudgingly given assistance, counsel, and advice. Canada, it was true, could boast of few art galleries, but in Montreal, Toronto, and other cities, valuable collections were held by private persons.

Mr. Thomas H. Mawson said he was rather surprised at one or two things to which Mr. Baker (the lecturer) had given expression. As an onlooker he (the speaker) thought that English influences might have been predominant during 1870-1890, but others had since been at work. The influences of the *Ecole des Beaux-Arts* and of McKim, Mead, and White were strong in America and strong in Canada to-day. A great number of present-day Canadian architects had been trained at the *Ecole de Beaux-Arts* under Pascal. It was a combination of influences, therefore, that had created Canadian architecture as practised to-day.

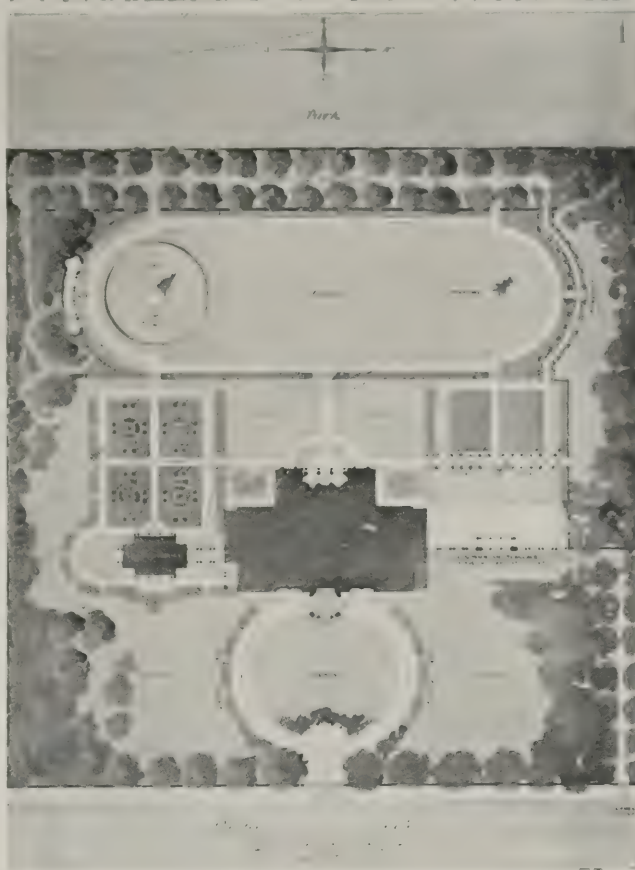
Professor Reginald Blomfield said they were all grateful to Mr. Baker for his account of the architecture in the Dominion beyond the seas. It was quite clear that their colleagues there were addressing themselves to architecture in a strenuous spirit. Obviously they were determined to have something which would work—and that, after all, was the first requirement. Mr. Baker had assured them of Canada's loyalty to the Institute, and this was one of the most encouraging things he knew. Canada should be equipped with replicas of all the best English work of the past, and he hoped that Mr. Baker's appeal would not pass unheeded by Whitehall. The Americans, continued Professor Blomfield, had overreached themselves in falling too impetuously into the net of modern French architecture. It should be remembered that the new work was very different from the old. Modern vernacular French work should not be imitated or adopted as the basis of a great tradition. Canada should found her style on an old tradition, and this, if followed, would establish a great tradition, adapted to all the requirements of modern civilisation. He believed that great things would come of the British School at Rome if it were properly handled, and he hoped to see young Canadian architects there before long.

Mr. Baker, in reply, said he would make it his duty to take back to Canada full particulars of the scholarships at Rome. Canadian students, as a rule, were not the sons of rich men—the sons of rich men were put to some easier work. Mr. Mawson, he continued, had spoken of the effect of McKim, Mead, and White on Canadian architecture. He admitted that this firm had done some exceptionally fine work; but there was a feeling in Canada that this particular school was not an altogether desirable one. For the future he hoped for a style based on a sound tradition of English architecture. The *Ecole des Beaux-Arts* was not held in high esteem in Canada, nor were modern French methods of draughtsmanship.

### STUDENTS' DRAWINGS.

WE reproduce on this page and on p. 145 a plan and a detail of the design submitted by Mr. L. H. Bucknell for the Royal Academy Travelling Studentship. Designs were required for a Nobleman's Town House, to occupy a site 500 ft. square, abutting on to a main road on the east, and bounded by a public park on the

## A NOBLEMAN'S TOWN HOUSE.



BY L. H. BUCKNELL.

west, with similar properties on either side. The house was to have a frontage of about 150 ft. with kitchens, etc. in a half-basement. The principal rooms were to be placed on the ground floor and sleeping accommodation over. A ballroom and picture gallery were not to be provided. The site was practically flat, having only a fall of 10 ft. from east to west (i.e. 1 in 50), necessitating a fairly flat treatment of the lay-out of the grounds.

### WORKING DRAWINGS BY WELL-KNOWN ARCHITECTS.

WE illustrate as a further example in the above series a detail of one of the entrances to the Manice Building, a huge twelve-storey structure recently erected on Madison Avenue and 32nd Street, New York, from the designs of Messrs. Wallis and Goodwillie, in association with Mr. Arthur Loomis Harmon. The entrance, which is one of four, is chiefly notable for the delightful character of its carved detail. We are indebted to "Architecture" for our illustration.

### THE WOOLWORTH BUILDING.

WE reproduce on page 143 two photographs of the completed Woolworth Building, New York, the architect of which astounding work is Mr. Cass Gilbert. The building was fully described in our issue of January 10th, 1912, when also plans and the architect's preliminary and final studies were illustrated. The Woolworth Building is now the highest building in the world, the total height from pavement level being 775 ft. There are 55 storeys, as compared with 12 in Queen Anne's Mansions, the highest secular building in London. The cost is put at £2,000,000.



## HERE AND THERE.

THE performance of Strauss's "Rosenkavalier" at Covent Garden has led me to think of music, and thence, by enticing ways, to the consideration of architecture's relation to music. But let it not be assumed that I am about to take up the well-worn theme that starts with "frozen music," and then proceeds to compare fenestration with rhythm, to see dentils and doors arranged according to sound notation, and finally to indulge in flights of musico-architectural fancy which lead, as one might suppose, to nothing. It is not this aspect of the relation of music to architecture that I have in mind, but the far more real conjunction of which we receive oral evidence as we rest on the stairs of draughtsmen's rooms, or come, unannounced, into studios filled with young men in overalls: in which last we may expect Strauss's "Rosenkavalier" to be abundantly suggestive.

Years ago I wrote something on this matter, and as at present it remains in the unturned pages of a journal that has gone to that far-away top shelf of the dusty bookcase, I have thought it worth while to give it a new lease of life in a fresh form.

As a commencement, then, let it be taken as a curious fact that draughtsmen have a habit of lapsing into whistling or humming when at work. The phenomenon is usual, and consequently not commented upon; but the idea of determining some definite ratio between the two things is certainly fresh. And it is here that an American correspondent (whose experience tallies with that of drawing-offices in England) comes forward with the happiest of information. He assures us that certain kinds of work are invariably accompanied by certain kinds of music, and that this music is almost always in inverse ratio to the difficulty of the work in hand. Thus, if you happen to go into an office where the music in progress is some complicated Wagnerian overture or Gregorian chant, you may be sure, without looking at the boards, that the work in hand is cottage work of no importance; whereas, if your ears are met by a music-hall refrain or musical comedy "number" you can infer that the intricate framework for a big business building is being dealt with. Continuing, this correspondent says: "I have found the most useful music for a general architectural practice to be Gilbert and Sullivan's operas. The range here is wide enough for almost everything. I spent over a year at one time on Gilbert and Sullivan music in a general office practice, very satisfactorily turning out work which varied from a Masonic temple to a Roman Catholic church, without friction. I recall one case in the same office where an excellent draughtsman, if he happened to be a little hoarse, so that singing was uncomfortable, would drop his work and go home, although otherwise perfectly able to continue. This happened so often in bad weather, and his appearance was so melancholy, that the 'chief,' thinking him afflicted with some internal trouble, provided a palliative, which, however, was considered to be worse than the malady. I now make it a rule to keep my office supplied with some good throat remedy, and find that the work goes on much more satisfactorily in consequence."

The relation between the capabilities of a draughtsman and his ear for music—not necessarily his voice—is generally a very close one. The man with a true ear will be found accurate, neat, and painstaking. And, with the ear as a basis, it might be possible to adopt an infallible test. The suggestion, however, is my American correspondent's, not mine, and I must leave the onus of proof on his shoulders when he adds: "An objection has been raised on the score that it would require long practice to acquire the necessary

judgment to properly determine the salary of any particular applicant by this method, but the objection is rendered void by my system, which consists in taking the salary rates of New York City as a standard, and carefully tabulating them according to percentages obtained by the use of a tuning-fork. These tables can be used anywhere by merely filling in the proper figures in the blanks opposite the New York prices; a series of blanks, printed on cardboard, in convenient size for filing, together with complete tuning-fork outfit (in neat hardwood case), being readily obtainable at all stores for a reasonable sum."

Here, then, we have the whole thing in a nutshell, and nothing more needs to be said.

\* \* \* \*

It is rather dispiriting to have to keep on deploring the way in which civic improvements are carried out in London, but the facts warrant the criticism. It cannot be thought, for example, that the alterations which have been effected around the Marble Arch are satisfactory, and now it looks as though the Mall scheme is to be permanently marred. My own opinion has always been that the taking of the roadway around the Victoria Memorial was a mistake—it would have been far better to leave Sir Aston Webb's competition plan undisturbed, where the memorial was the centre of a garden enclosed by a colonnade, with the roadway outside the latter—but the archway at the opposite end, leading into Charing Cross, has suffered a still unhappier fate, for it is hemmed in by buildings on the side to Charing Cross, and thus is shorn of its possible effect. It will be remembered that at the time of the Coronation, in order to make the place presentable, the Office of Works, the London County Council and the Westminster Council patched up their differences, and the opening was partly cleared; but all hope of a total clearance is gone now that the County Council have allowed the Liverpool, London, and Globe Insurance Company to get possession of a strip of the area. The Westminster City Council very rightly protests against this, for it means that, except at still further cost, the much-desired opening out of the archway, so that it forms a clear entrance from Charing Cross, will be rendered impossible of achievement. The fault lay in the original scheme, which considered the memorial as confined to the Mall, and not, as it should, as part also of a street improvement at Charing Cross. This is a fault, unfortunately, which often characterises civic schemes in England, and without uttering again the wearisome tag that they do these things better in France—which is often a myth, as witness the dilatory way street improvements are carried out in Paris—we cannot shut our eyes to the fact that in this country we are short-sighted: the Mall scheme being a deplorable example.

\* \* \* \*

After reading about those new Mappin Terraces which we are going to have at the Zoo, it becomes more than ever plain that the uses of reinforced concrete are boundless, and we may yet see some magnificent new mountains on the — system. Messrs. Belcher and Joass are the architects who have the Mappin Terraces in hand, and as the work—shades of William Black and Ruskin!—is to be of concrete and steel, I hope that the correspondence recently published in this Journal will not have been profitless, and that there may be no collapse of bear or chamois through a misconception of the neutral axis, resulting in undue tension in the reinforced concrete rocks and pinnacles.

UBIQUE.



## CORRESPONDENCE.

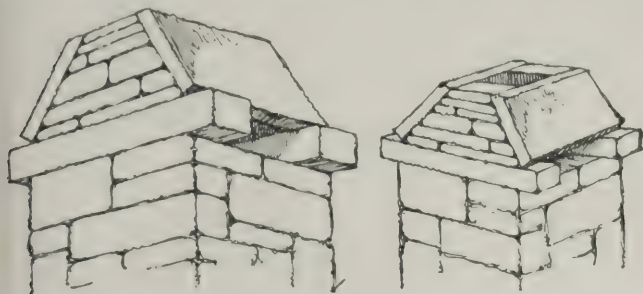
*The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents.*

*Correspondents are asked to be brief and to write on one side only of the paper.*

*"The Problem of Smoky Chimneys."*

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—Mr. Edwin Gunn's most interesting article on chimneys, in your issue of January 15th, recalls to my mind an effective draught-creating chimney on an



old Yorkshire cottage. The cottage is situated in a valley (I think in Wensley Dale) and against and below a viaduct.

Perhaps the accompanying sketch will prove of interest to your readers.

Dulwich, S.E.

PERCY MAY.

*Fire Precautions at the Royal Albert Hall.*

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—Referring to the statement under the heading of "Fire Precautions at the Royal Albert Hall," in your issue of January 15th, it appears to me that the suggestions put forward as to its safe condition are subject to modification.

As a member of the public I have visited practically all parts of the hall, and I consider that the arrangements in the event of fire and panic leave very much to be desired.

One of the worst defects is the absence of any illuminated exit notices inside the auditorium. These should be on a separate electric supply, so that if the main supply fails the public are able to find the exit passages. It is hardly possible that many would find the exits should a panic occur after the current failed, and the loose chairs in the area would complete disaster.

Then, again, when in the continuous corridors, one has to run the risk of meeting streams of people (so dangerous in a panic); or, if this is avoided, the glass partitions (which everywhere are the only separations between the exit staircases and the corridors at all levels) permit the view of persons descending staircases which are unavailable to the part of the house one may happen to be in. This arrangement would, at a crisis, cause a frantic rush round the corridors in search of the staircase set apart for that portion of the house.

As to the statement that the hall can be cleared in five minutes, I can definitely say that on one or two occasions I have timed myself from the balcony to the street, and have found that it takes about twelve to fourteen minutes to gain the street. If the various staircases were separated from smoke and fire risks from other parts of the hall the slow progress to the street would not be so dangerous; but they are subject to this danger at every level.

The amount of exit accommodation is also much below the accepted standard in London. The hall will seat about 8,500 persons (and is often made to accommodate far more). Therefore, the total width of exit doors together to the street should be about 170 ft., a figure that is far from that provided.

The internal construction is chiefly of timber, especially the balcony tier and corridor, which are lined with soft wood. In fact, the greater proportion of the wall surface of the hall is lined with match-boarding having a hollow space behind it. Many well-known old theatres perished by fire chiefly through this cause, such as the old His Majesty's, the Haymarket, and the Surrey Music-hall, and also in more recent cases this feature has caused great destruction. No doubt this wall lining is provided to improve the acoustic properties of the hall, but it constitutes one of its most serious defects.

London, S.W.

A.R.I.B.A.

*Mr. Wells's Presidential Address.*

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—With further reference to the above, I am delighted to see that my letter has brought forth a discussion of a very interesting problem. I must confess, however, that nothing your correspondents have argued has convinced me that my theory is wrong.

No doubt there is a concealed arch action in a plain slab. It can, however, be of use only in case of a comparatively thick slab of short span, and could hardly apply to the case I mentioned of a slab 5 in. thick and 5 ft. span. The rise of the arch would in that case be  $2\frac{1}{2}$  in. in 60, or 1-25th of the span, and, consequently, of very little practical consequence. Furthermore, before the arch action comes into play the concrete of the slab in tension would have to crack, which has not occurred in any of thousands of cases of plain slabs constructed over and between steel joists. Mr. Waldram's remarks as to the action of some coke-breeze on steel does not apply, as the slab I mentioned does not contain any reinforcement. Moreover, I was simply comparing the poorest concrete of former days with our present concrete from the point of view of strength only.

We have ample proofs before us that concrete resists considerable tension, and also that this tensile resistance increases with age. I give below the results of a few tests, and would point out that these are all relating to freely supported slabs of plain concrete, so that there can be no question of arch action at all which presupposes a reaction of an abutment and a thrust.

Hanisch and Spitzer tested plain concrete slabs 5 ft. long and 2 ft. wide, mixed 1 to 3, three-quarter-year-old, and obtained a tensile resistance of 356 lb./in.<sup>2</sup>.

Moersch made a test with slabs three months old 3 ft. 4 in. long, 6 in. wide, and  $7\frac{3}{4}$  in. thick, loaded in the centre of slab. The result was as follows:—

For concrete mixed with 8 per cent. water—

1:3 330 lb./in.<sup>2</sup>, 1:4 235 lb./in.<sup>2</sup>, 1:7 182 lb./in.<sup>2</sup>.

For concrete mixed with 14 per cent. of water—

1:3 330 lb./in.<sup>2</sup>, 1:4 235 lb./in.<sup>2</sup>, 1:7 182 lb./in.<sup>2</sup>.

An official test made by the testing authority at Berlin to ascertain the increase in tensile resistance of concrete gave the following results:—

1:3 at 28 days 334, at 3 months 391, at 3 years 529 lb./in.<sup>2</sup>.

1:4 at 28 days 322, at 3 months 400, at 3 years 415 lb./in.<sup>2</sup>.

1:5 at 28 days 281, at 3 months 281, at 3 years 331 lb./in.<sup>2</sup>.

A test made by Sanders:—

1:2:3 at 1 month 394, at 3 months 458 lb./in.<sup>2</sup>.

1:3:3 at 1 month 106, at 3 months 217 lb./in.<sup>2</sup>.

Many other tests could be enumerated. A summary of the results gives the following facts:—

Concrete in reinforced slabs has a greater tensile resistance than in plain slabs.

The tensile resistance increases with the amount of reinforcement, the mechanical bond, and the roughness of the reinforcement.

The tensile resistance increases with the age of the concrete.

The tensile resistance of concrete is fully recognised abroad, as is shown by the Prussian and Austrian regu-



lations, both of which allow this resistance to be taken into account in certain cases. The Prussian Government regulations allow a stress equal to one-third of the tensile breaking resistance of test cubes, or as an alternative, where no such tests are made, a tensile resistance equal to one-tenth of the compressive resistance of the concrete.

I quite agree that the theory does not work in with our present formulæ, but, then, these formulæ are not theoretically correct, as they omit a factor which actually exists and must come into play, viz., the tensile resistance of the concrete.

As regards the lever arm, this is, of course, decreased, as Mr. Waldram shows, if several layers of steel are used; but that argument does not apply to the point under discussion, as there naturally are as many layers of steel in the slab when it is old as when it was constructed.

The cause of the increase in the compressive resistance is, of course, clearly established, but as equilibrium can only exist if the tensile resistance increases also, I maintain that this must be due to other agencies being at work.

The tensile resistance of a slab or beam is  $R = B = a \times A_t \times t$ . Now,  $a$  remains the same, or even decreases, as your correspondent will have it.  $A_t$  remains the same; how, then, can the equation be right if  $B$ , viz.,  $R$ , increases on the one side, and there is no equivalent increase on the other side? The  $t$  can also not increase, consequently there must be something aiding the  $t$ , and that can only be the tensile resistance of the concrete, as there is nothing else acting in the beam except the forces mentioned below. As a matter of fact, there are additional forces coming into play. For instance, it is clear that slipping of the reinforcement must come before failure in tension, and therefore a deformed bar giving a mechanical bond will increase the tensile resistance of the concrete. Hangers and stirrups will have the same effect to a certain extent, and also the increase in adhesion.

I am not by any means proposing to take the tensile resistance of the concrete into consideration in the design of reinforced concrete work. It would mean complicated formulæ and a smaller factor of safety, which, to my mind, is quite small enough already. The point at issue is simply to show why an old floor or beam is stronger than a new one apart from the compressive resistance. I feel sure—although, of course, I do not know—that Mr. Wells, when speaking of an increased lever-arm, used that expression merely as a figure of speech, and in my letter to you I think I have proved that the action of the tensile resistance of concrete is equivalent to an increased lever-arm.

London, S.E.

F. RINGS.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—In your current issue Mr. Kempton Dyson points out, quite correctly, that the suggestion that the strengthening of concrete with age necessarily increases the lever arm of beams has a certain small fortuitous element of accuracy, because the stiffness also increases with the strength; although strength and stiffness have little relation to each other. But as it is necessary for the stiffness to increase by 300 per cent. in order to increase the lever arm by 6 per cent. one may perhaps be pardoned for having neglected this somewhat minute factor.

Considering that the modular ratios of steel and concrete have been the subject of careful experimental research at the hands of engineering scientists for some years, and that the ratio of 15 has been adopted in practically every code of regulations all over the world, it would be very desirable to have full details of the conditions under which Mr. Dyson obtained the results which lead him to suggest a ratio of 5, viz., a modulus of elasticity for

"ordinary good quality" concrete of no less than 6,000,000 lbs., steel being practically consistent at 30,000,000. This represents an enormous increase over the usual value of 2,000,000 lbs.

The determination at the elastic modulus of concrete in the presence of reinforcement is by no means an easy or simple operation. It varies with the loading, with the repetition of the same load, with the amount of water used and with the method of ramming, and a very extensive series of results must be obtained before any figure can be deduced comparable with the value of 15 for  $M$ , which purports to represent the average value at working loads.

It is not difficult to get a value of about 6,000,000 lbs. at light loads on concrete mixed very wet.

The well-known variation to which Mr. Dyson refers, which takes place in the position of the neutral axis of a beam as the load increases, and after the elastic limit has been passed (as indicated by deep tension cracks), is of course an entirely different phenomenon, common, I believe, to concretes of all ages and strengths.

PERCY J. WALDRAM.

"Experimental Concrete Cottages."

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—Referring to the plan, in your issue of January 29, of a detached cottage covering a ground area of about  $25 \times 16\frac{1}{2}$  superficial feet, the cost (£100) appears so extraordinarily small that I suggest to Mr. Thackeray the desirability of furnishing further particulars with regard to this point. Reinforced concrete stanchions, beams, floors and roofs do not, as a rule, make for cheapness in cottage construction. The cost (£100) works out at about 3d. per foot cube, exclusive of foundations. If cottages of a similar size can be built for a similar amount, the cheap cottage problem should be solved.

P. T.

The Colour of Rosewood.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—There appears to be an error as regards the colour of wood in the table of timbers given in the Journal of January 8th. On page 49 rosewood is stated to be a yellowish white. This wood is a dark purplish red, with darker, almost black, streaks.

W. J. S. PERRIN.

[In "Timber," by J. R. Baterden (1908: Constable and Co.), it is stated (p. 137) that the colour of Brazilian rosewood is "a dark chestnut brown," and (p. 176) that in blackwood or shisham (*Dalbergia latifolia*), "the rosewood of Southern India," the heartwood is "nut-brown or dark purple, with white or dark longitudinal veins or streaks and small whitish specks." Many of the Brazilian woods are described as yellowish white, or tawny or grey; and sissoo (*Dalbergia sissoo*), one of the three Indian species of rosewood, and the best of Indian timbers for joiners' work, is "greyish brown, veined."—EDS. A. AND B.J.]

## MODERN SMALL HOUSES.

THE house at Abersoch, Carnarvonshire, illustrated on page 150, has been built for Dr. O. J. Evans. The design was placed first in the "Daily Mail" Ideal Home competition of 1908. Special precautions had to be taken on account of the exposed nature of the site, the walls, of stone, being 1 ft. 6 in. thick, rough-cast on the outside. The total cost of the house was a little under £1,000. Mr. Williams Wands, of London, N.W., was the architect.





Front View.



Rear View.

CASS GILBERT, ARCHITECT.

THE WOOLWORTH BUILDING, NEW YORK.

(See page 139.)

LIBRARY  
OF THE  
UNIVERSITY OF ALABAMA



STUDENTS' PAGE.



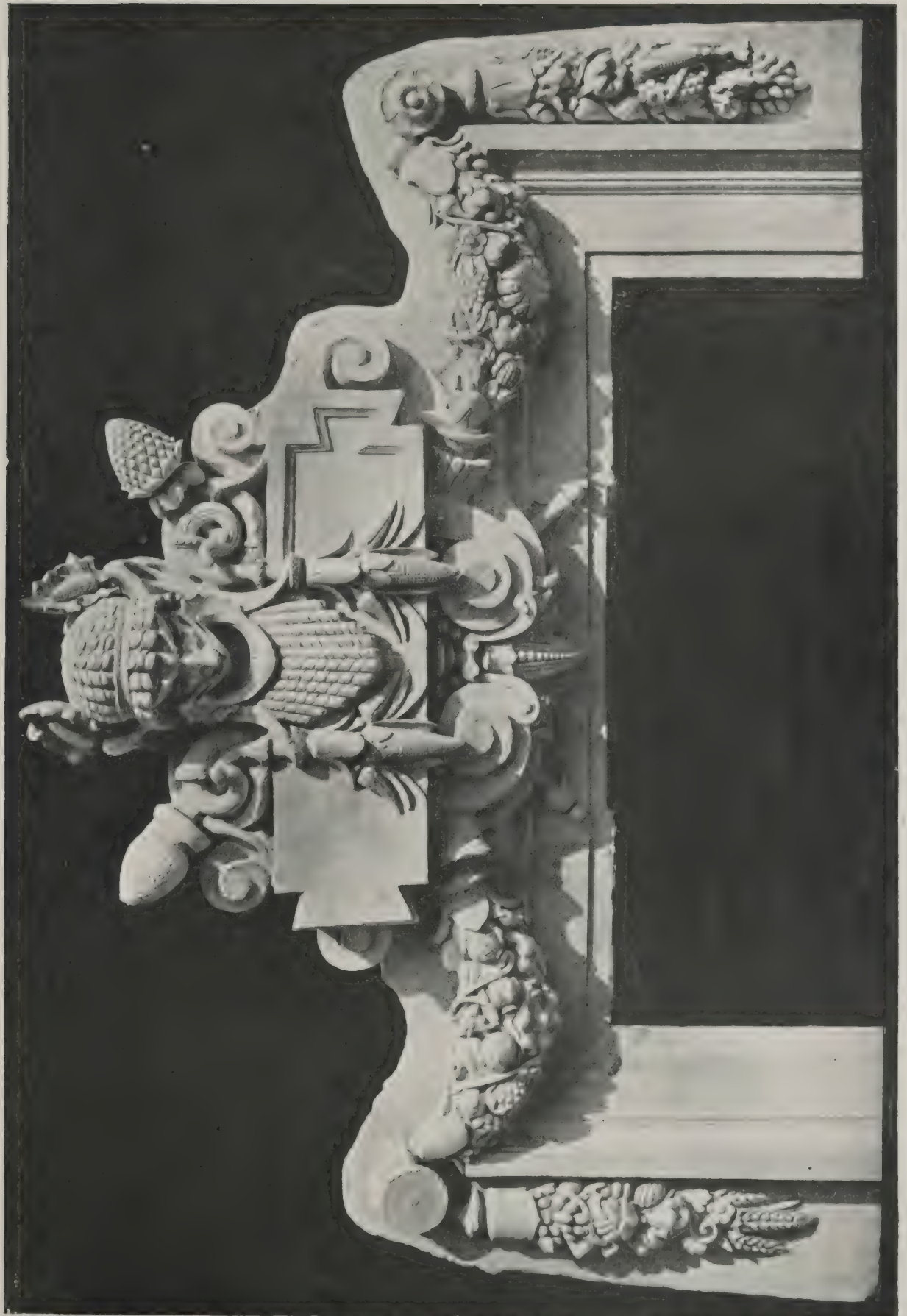
ROYAL ACADEMY TRAVELLING STUDENTSHIP DESIGN.

BY L. H. BUCKNELL.

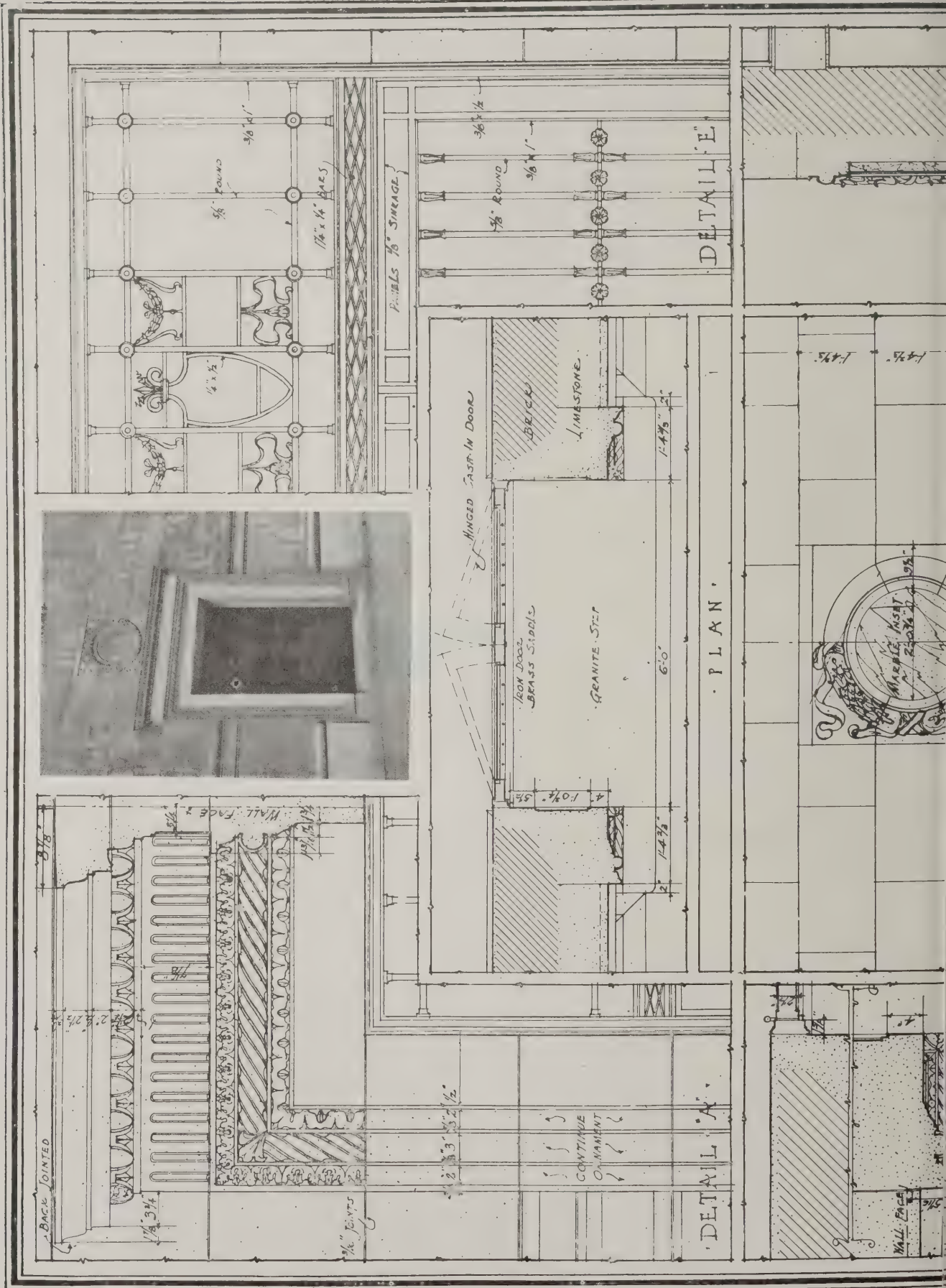
(See page 139.)

LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS





DETAILS OF SCULPTURE FROM THE OPERA HOUSE, PARIS. III.

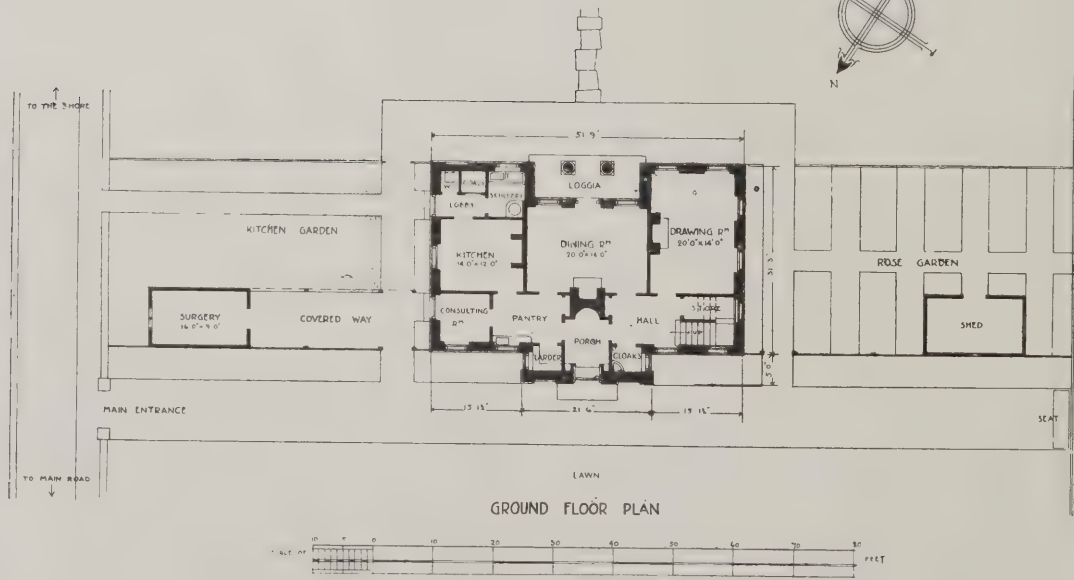








FIRST FLOOR PLAN



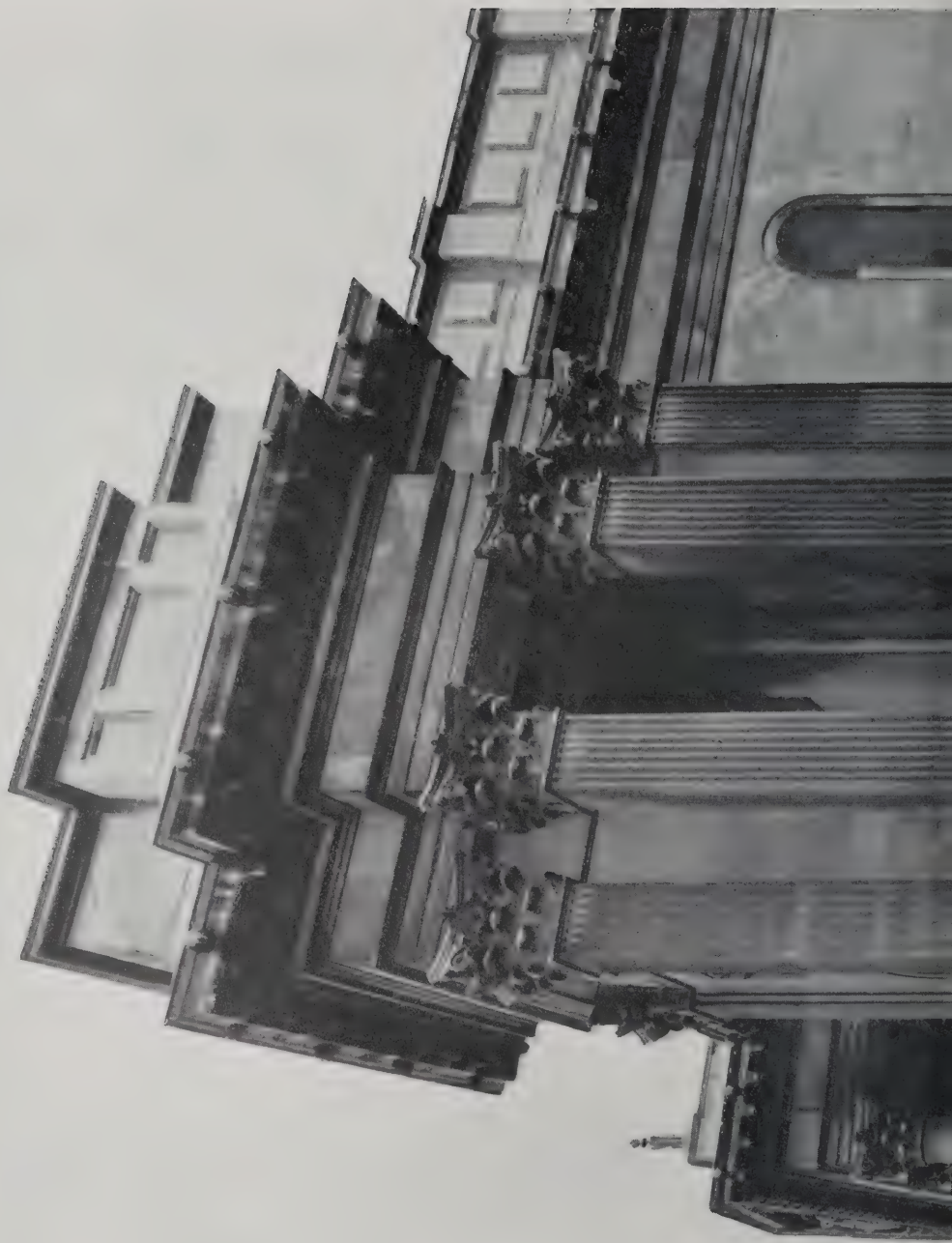
MODERN SMALL HOUSES. XV.—HOUSE AT ABERSOCH, CARNARVONSHIRE.  
WILLIAM WANDS, ARCHITECT.

(See page 142.)





*Supplement to THE ARCHITECTS' AND BUILDERS' JOURNAL, Wednesday, February 5th, 1913.*







*Photo: Architects and Builders' Journal.*

THE FITZWILLIAM MUSEUM, CAMBRIDGE: END VIEW OF FAÇADE.





## THE SOCIETY FOR THE PROTECTION OF ANCIENT BUILDINGS.

## AN INDICTMENT AND A REPLY.

A SOMEWHAT severe criticism of the methods of the Society for the Protection of Ancient Buildings, which was printed as "from a correspondent" in a recent issue of "The Times," is constructed on the Machiavellian principle of preceding an indictment by a compliment. It begins pleasantly enough—thus:

"The Society for the Protection of Ancient Buildings, founded in 1877 by that notable artist and enthusiast William Morris, and some of his intimates, is one to which the whole State owes a not inconsiderable measure of gratitude. By the assiduity and persistence of its vigilant and persevering secretary, Mr. Thackeray Turner, it has weathered much criticism and even ridicule, until it has secured a definite position wherever the preservation of important buildings of antiquity or objects allied to them is concerned.

"The difficult process of waking up a callous country to a knowledge of and care for its immense wealth of possession in the tangible relics of its past has, in many cases, come almost too late. Specially is this the case in respect of ancient buildings which ignorance or misdirected zeal has too often swept or 'restored' away. There is still leeway to make up even among so educated and influential a body as the clergy, apt as a class, though with many notable individual exceptions, to be more influenced by modern fashion in church fitting and arrangement than instinct with a true historic sense; still more among county councillors and such officials as their surveyors, among whom too often predominates a petty tradesman's spirit, antagonistic to sentiments of preservation and beauty for their own sake. . . . While, then, much yet remains to be done, what has been done can truly be placed largely to the credit of William Morris and his assiduous followers in the Society, of which so astute a 'Whip' as Lord Balcarras is now both ostensible and able head."

Again under cover of a compliment—this time a rather "backhanded" one—the correspondent makes what we believe to be an unfounded insinuation. It is well enough to say—what is true enough—that "The energetic secretary [meaning Mr. Thackeray Turner, who, it will be remembered, some time ago resigned that position, which he had so long filled with conspicuous ability], although an architect, seems consistently to have observed the wise course of not undertaking the direction of work in which the Society was directly interested or successfully interfering. He has felt, no doubt, the almost necessary weakening of influence likely to follow a suspicion, even if quite undeserved, that a propagandist society might be working, not for a cause alone, but for the profit of some of its members." But what follows seems inconsequent and not altogether fair: "Such wise abstention has not been observed, of late years specially, by some of the Society's younger and less experienced members. It has been remarked, in fact, not without apparent cause, that the Society is apt adversely to criticise able and careful work done by 'outsiders,' while doubtful and certainly inexperienced work done by its young ἐπίτροποι meets only with approval."

We are not concerned to defend the Society or its methods, which, indeed, have been often enough criticised in this Journal, though never unfairly; yet we certainly feel that the charge of disingenuous criticism insinuated against its members should have been either supported or omitted. This, however, is observed by the way, as an expression of principle, and without any intention of entering into the present phase of an interminable controversy, except to remark that we are in full agreement with the contention that the Society should remain critical and not seek to become executive in the sense of actively engaging in works of restoration; although it must not be overlooked that the attitude here recommended would involve a difficulty to which Mr. Thackeray Turner refers in the third paragraph of his letter printed on p. 152.

The "Times" writer is more definite and outspoken in his own criticisms of some of the work of the Society. He continues: "The Society in question has published, among other useful pamphlets, a concise and pithy text-book (1903) explanatory of its objects, set forth lucidly and without reproach, and also of its principles and methods, by no means quite so convincing and not always so easy of analysis. These are elucidated by diagrams chiefly taken from an unnamed church in Hertfordshire, and from the Town Hall at Exeter, one of the first buildings of importance whereon the Society seems to have been given a free hand. The methods of repair thus set forth have since been carried further, until the work recently executed upon such important structures as St. John's and Magdalen Colleges at Oxford, some fine churches in Norfolk, Suffolk, and elsewhere, and the beautiful Church House at Cirencester has raised alarm, and even distress, in quarters favourable to the Society.

"Although not quite so definitely stated as such, the method adopted, when subjected to analysis, appears to be in pursuance of some such tenet as this, that, lest posterity be deceived, it is wrong to repair any building with the material with which it was erected. Not stone, but a substitute for stone, must fill the gap in stone, and so on. Thus do we find the stonework, so frequently used in East Anglia to frame patterns filled with split flints, replaced by banded roofing tiles; decayed mouldings and string-courses renewed by coarse copies made of a composition of mortar. In another case belfry windows, whose remains sufficiently indicate their original stone construction, are projected to be renewed in oak. Again, at Clare, in Suffolk, the flintwork has been repaired in blue Staffordshire bricks, whose presence has not added to the harmony of the building. However, a curious inconsistency in the methods employed must be remarked. Though mortar in some places and banded tiles in others have been used instead of stone in plinth courses, mouldings, and ashlar, yet we find instances, in the same buildings, of stone tracery replaced by stone; albeit the technical skill of this new masonry has been questioned by comparison with that of the mediæval craftsman which it replaces. Stone is thus used to replace stone, although the pamphlet tells us that after a little experience the workmen will be able, with proper

supervision (that of the Society is no doubt implied), to repair decayed mullions and tracery by layers of pieces of tile set in a bed of mortar.

"In the Oxford examples, which have chiefly prompted this article, the method seems to have been to scrape away defective stone, whether in ashlar facing or moulded work, and to replace it with mortar, then to dress the whole building, old stone and new mortar alike, with a wash of a none too pleasing grimy mixture. The charm of texture of these beautiful fronts has been lost and their delightful detail travestied. But a caricature of them survives. The spectator is prone to long for the undoubted decrepitude previously displayed by these well-loved works of architecture, illustrative, Magdalen of the master-mason, St. John's of the architect of the past, whose surprise and dismay can well be pictured could they but return to see their conceptions 'faked' by such pedantry. The phrase is none too strong, because the lamp of truth is held up to us by the Society, only, it seems, to light our way along such dark and uncertain paths as these. But if the lamp of truth be in question, it may well be asked if it is quite honest to make mealy copies of mouldings in mortar and then conceal mortar and stone alike under a messy wash. To quote again from the Society's booklet, 'It is artistically demoralising . . . to be making slavish copies when there is no hope that they can surpass their model, but on the contrary a certainty that their copy must be inferior to the original.' True that these mortar mouldings cannot deceive the elect. If there is one thing in mediæval work more certain than another, judging from the few untouched and unweathered examples of masonry handed down to us by happy chance quite fresh from the craftsman's tool, it is the accuracy of workmanship and beauty of line attained by their authors; and one shudders lest the ominous scaffolding around Magdalen Tower may herald a treatment likely to disturb the ghost of Wolsey as well as the latter-day lover of Oxford. Let it be added that this is written with the fullest detestation of the methods of 'restoration' usually adopted in the Victorian era, and still unfortunately not dead among us. But their survival is likely to be prolonged if the Society allows its better judgment to be warped by doubtful devices, to which the time is ripe for public attention.

"The effective permanence of such work as the Society is now effecting can only be tested by time. It is enough to say that many experts believe—nay, hope—that it will be but ephemeral, although the buildings have been robbed of their beauty in the execution of the process. The charm of weathered antiquity has yielded to a diseased and unwholesome aspect.

"To conclude. The objects and abstract principles of the Society strike a true note which commands assent. But to put them into practice does not demand insistence upon the Society's particular method of execution. And if the Oxford examples are to be accepted as types of the practical outcome of the Society's teaching and guidance, the hour has come for a revision of method on its part. Such schemes bespeak a sentimental and warped judgment, unconvincing as the last word in



temperate, well-judged procedure, consistent with the Society's best aspirations.

"It must not be forgotten, too, that other important societies, such as the National Trust, to mention only one, rely upon the Society for the Protection of Ancient Buildings for advice and direction. It would be grievous to find some of the newly acquired national monuments dealt with as have been the garden front of St. John's and the block of building at Magdalen here referred to, and known there as the Kitchen Staircase."

To this article Mr. Thackeray Turner has published the following reply:

*"To the Editor of 'The Times.'"*

"SIR,—In your issue of December 31 you publish an article by a correspondent which begins by stating that I am secretary of the Society for the Protection of Ancient Buildings, which is inaccurate, as I retired some time back and Mr. A. R. Powys is now secretary.

"This fact makes it all the more easy for me to reply to some other statements in the article which I think are misleading.

"It is perfectly true that when I was secretary I avoided practising the art of repairing buildings, although at the request of the committee I did repair Queens' College, Cambridge, and I also repaired Hatfield Church and Cobham Hall. But it is also true that I urged the committee to abandon the custom of only recommending architects who were not members of the Society as unreasonable, for our architect members were the very men most fitted to repair buildings as knowing most about the subject.

"This, however, is the most important point, that when recommending them the condition was attached that they should personally direct the work on the spot or provide a young architect who would give his whole time to directing the work on the spot. No young architect is ever recommended who has not had a long training on repair work under some experienced architect who is also working on the actual building. Moreover, such architects are not paid by percentage on the cost of the work, but by time. All visitors to the weekly five o'clock Thursday meetings of the Society are welcomed, and if your correspondent would attend some of these meetings I am convinced he would say that work was only put into the hands of those most fitted to do it.

"I entirely resent his suggestion that the Society works for the profit of its members. The amount of professional work which has been and is being done by the professional members of the Society without any remuneration is enormous. Your correspondent is entirely wrong in thinking that architects whom the Society recommends 'make good' defective work in mortar. What he has mistaken for mortar is thin layers of hand-made tiles or pieces of tiles bedded in mortar—a most durable form of work. He clearly wishes stone to be used, but forgets that if stone is used it involves cutting away masses of sound stone in order to bed the new stone. And again the 'messy wash' which he complains of is a treatment of lime and baryta, the appearance of which the society does not admire, but which it thinks justified on account of its preservative qualities.

"The Society has, it is true, repaired a large number of buildings for the National Trust, and in my opinion they have all without exception been exceedingly well done, and I have never heard any one with the exception of your correspondent give a contrary opinion."

## AN INDICTMENT OF POST-IMPRESSIONISM.

SEVERE criticism of the modern Post-impressionist movement was the chief feature of Professor W. R. Colton's recent lecture before the Architectural Association on "Ancient Influences and Modern Factors in Art." The first factor in modern art, said Professor Colton, seemed to him to be that of anarchy. We had all seen the modern tendency in painting, music, and sculpture, and also something of it in architecture. It was called "New Art"; but to his mind it was the antithesis of all art. We were living in an age when it was the wish of a strong minority to break down the rules and conventions which all civilisations had thought it wise to establish for the good government of nations and individuals. In art the rules and regulations were more natural, as they had grown out of the arts themselves. If they were thrown over, curiosities might perhaps be obtained—jumbles of colour and form, stimulants to degenerate minds—but not, he ventured to think, the science of art. A celebrated expert in insanity had told him that he had two thousand pictures done by his lunatic patients—in all essentials exactly like the mass of so-called Post-impressionist pictures.

Some would at once say that perhaps this expert in lunacy was not an expert in pictures; and there they hit upon the weak spot of all art criticism. Did the critic understand his subject? Was he infallible? So they argued in a circle, as it were, and any daub might be good because those who condemned might be wrong. Therefore, analogy and the experience of two thousand years were the only arguments that could be brought forward to throw any light upon the position. He thought we could put the professional critic entirely on one side, and try to draw our conclusions from the analogy of the past.

The standard of art, in spite of its subordinate differences of manner, had been practically steadfast for two thousand years, in contrast to the standard of science, which was always altering. At present we collected only antiquities and curiosities in our museums and galleries. We were rapidly losing our æsthetic sense, and thought to replace it profitably with musty archæological labelling, and pedantic and dictatorial classification. As an example of this, in wandering round the British Museum he found that the Venus de Milo—that statue which stood upon perhaps the highest and noblest plane possible to sculpture—was classified as being of a second-rate period of sculpture.

It had been truly said, he thought, that a picture of the artistic value of the finest Titian would be refused by the authorities unless it could be proved to be ancient and to fit well into a niche of our national museum of curiosities. The feebleness of our national intention in art matters was well shown by the desire to throw on one side the national competition, the one strenuous factor in modern, national art education. Perhaps a worse tendency was shown in the Victoria and Albert Museum. That museum was supposed to be entirely educational. It was founded in conjunction with, and as a help to what is now the Royal College of Art. Nowadays those in command had little interest in art education from the æsthetic side, and seemed purely interested in its antiquarian value, more particularly from the Renaissance point of view. This seemed to him to be a great loss, and he would explain why. All modern industrial design was founded on the mass of examples of fine work that had

preceded it. The textile designer wanted to see all the fine woven examples of all countries; but he was not interested in an example because it was thirteenth century, if it was generally a poor production. The sculptor wanted to find the fine statues of the past, whether they were Renaissance or Greek, in marble, or bronze, or even plaster. The great collection of classic plaster casts had been swept away or put into the cellars. Within the last few weeks he sent an assistant to obtain a drawing of an Ionic cap; he failed to find one in the museum. At present the tendency of that museum was to become purely a collection of Renaissance work. Its mass of old English water-colour treasures, he was told, lay in drawers, uncatalogued, unclassified, and practically inaccessible to the general public.

That we had grievances in art matters against governments, he fully admitted. Modern art was carefully not encouraged by modern Governments—especially that of England. The nation, through some of the officials and advisers, appeared to give its support to those foolish productions which were called by the high-sounding name of Post-impressions. There were, he admitted, many advantages about them. "They can be dashed off quite rapidly; in fact, it is essential that they should be dashed off without thought, or they will lose that innocence of expression that is supposed to be their merit. They can be turned out rapidly; therefore, if they are ever sold, as I am assured they are by those interested, the profit is great. No weary years of preparation and study for their production are necessary or desirable. To be an apostle of this art you have only to throw overboard all facts and deny everything. If you are brought to book with the criticism that you are out of drawing, that a nose should be in the middle of the face and not on one cheek, you have only to reply that you see it thus, and all the work and talent of past ages stands dumb before you. To put it more commonly, you have knocked the wind out of your critics. You pose as the high apostle of a new vision of something too remote to be understood by the ordinary observer or skilled critic. You go proudly on your way, and your opponent is left in the mud of ignorance. This position is so dreadful to be left in that even our solid Government officials are lending their names to exploit these amusing experiments in credulity. They would appear to be trembling with fear lest they should be left behind to blush for the Rembrandts, the Durers, and the Turners that are left in their care.

"It is said that these pictures arouse sensations that the Turners, Rembrandts, and Durers fail to do. This can be well understood; for it is a common quality of all gross crudeness to do so. The faculty of art seems to be the capacity of choosing the beautiful or of representing the ugly in such a sumptuous manner, with such a rich quality of paint or subtle cunning of form that the brutal or simply ugly becomes a thing of beauty. This quality, superadded to the love of the artist for a naturally mean subject, is legitimate art and is constantly seen in the Old Masters. There is little doubt that Turner could have made a gorgeous object of a manure heap if he had wished to paint it, but the hoggyish desire to wallow in ugliness and render it more repulsive by the manner of its representation can never, I think, be considered art.

"At any rate, if you take the Post-impressions as your standard of art, you have no need for a training at an art



school; because the more completely you throw off all cultivation and go back to absolute ignorance the more merit has your work. A parallel to this would seem to be the destruction of your fine architectural building in favour of a mud hovel or a hole in the ground.

One critic says that this movement is really a development of realism, and seems to think that ugliness is the only reality, and that beauty does not exist except in the mind of the old-fashioned artist. In a recent trip to Paris I saw in one of the most famous productions of Matisse a lady's nose painted as an elongated triangle and coloured a bright emerald green, and a perfectly flat tone at that, without any modelling. I am not saying that after some distressing accident such a nose might not be discovered, but I cannot see the merit in putting such a nose on canvas unless it is self-sacrifice.

Another modern and curious phase of the eccentric in art, continued Mr. Colton, was the craze of the moment for mutilation in sculpture. Not content with a beautiful figure conveying some idea, it had been discovered by a certain school that to lop off a leg, or two legs, perhaps an arm, or two arms and a head, greatly enhanced the value of an artistic production. At any rate, it left more to the imagination—like to the cannon smoke of a battle-painter's picture. Some bolder genius of this type had gone a step further and split off a fragment of a face for exhibition; another had a head without a crown. In one gallery alone he had noticed that a large proportion of the exhibited works were mutilated, of course counting an ordinary bust as a complete work.

He asked them as one who wished to discover the truth: "Was this really a serious effort after our finest sculpture, or was it the hypocrisy of art, a mere juggle to blind the eyes of the observer?"

A vote of thanks to the lecturer was proposed by Mr. Hooper, seconded by Mr. Brittan, and supported by a number of other speakers. The lecture was illustrated by a selection of interesting lantern slides.

## COMPARATIVE COSTS OF DOMESTIC HEATING.

Under this heading, on p. 47 (January 22), we gave some comments, by Mr. J. D. Hamilton Dickson, on certain points in Mr. C. R. Darling's Cantor lectures on heat economy. To these and to some other criticisms Mr. Darling has published a reply, in which he explains how the relative values of heating units given in his lecture were arrived at.

Taking an ordinary coal fire-place, it was assumed that only 20 per cent. of the heat of the fuel was utilised in warming the room, and it was then computed, from the average calorific value of household coal, selling in London at 26s. per ton, that 112,000 B.Th.U. were produced by burning one pennyworth. Twenty per cent. of this quantity of heat, or 22,400 B.Th.U., would therefore represent the effective warming power of one pennyworth of coal. In the case of gas-fires and anthracite stoves an efficiency of 75 per cent.—which may be realised in practice with either—was assumed, and by taking cost and calorific value into account, as before, the figures given resulted. All this was fully explained in the lecture, and will appear in the full account to be published in the "Journal" of the Royal Society of Arts.

This method of calculating comparative costs refers only to the best conditions of working, and does not pretend to take into account the relative importance of direct radiation and convection. It was adopted because the figures given by different authorities for the relative costs of the methods varied so greatly that no concordant values could be derived from them. No better example of such disagreement could be given than the data put forward by various correspondents, and it is evident that the tests must have been made under widely different conditions.

Mr. Darling further states that his condemnation of coal fireplaces did not apply to the modern types, examples of which were described in the lecture, and their advantages demonstrated by the aid of an experimental model. The introduction of the modern fireplace Mr. Darling attributes to Dr. Pridgin Teale, F.R.S., who was the pioneer in this field, and who drew public attention to the correct design in a lecture delivered at the Royal Institution in 1886. It must be remembered, however, that modern fireplaces are still the exception, and in the houses built during recent years are only to be found in those occupied by the middle and upper classes. A modern fireplace in a workman's dwelling is still a rarity, and thus the one who can least afford the waste due to the cheap variety is penalised.

Discussing the same subject, Mr. Hylton B. Dale says:

By using an anthracite stove continuously (instead of twelve hours at a time) there is undoubtedly a great saving, as the consumption may be shut down to a minimum during the night, and thus only about 2-3 lb. burned during the second twelve hours. Unfortunately, the makers generally inform buyers that the stoves require no attention at all, whereas the truth is it is advisable to open the front for a moment two or three times a week to see if all is well, as otherwise a single piece of slate will cause trouble by stopping the draught and causing the surrounding "nuts" to be only half consumed. In such case the offending piece may easily be removed with a hook or bent piece of iron.

Mr. Dickson had said that he could not agree with Mr. Dale's figures for gas, giving his own experience as 52½ cu. ft. per hour, against the figure of about 31 cu. ft. per hour which Mr. Dale had mentioned. But this figure, Mr. Dale says, is that given by the gas companies as the result of their special tests. Mr. Dale's own experience gives 42½ cu. ft. per hour as the general average consumption, which is about midway between the two figures quoted, and is therefore likely to be pretty correct.

Mr. F. W. Goodenough states that both Mr. Hylton Dale and Mr. Hamilton Dickson in their comparisons of the costs of gas and coal for heating ignore one very important factor, namely, that the heating of rooms in this climate rarely needs to be continuous even in the case of living-rooms, and never in the case of bedrooms (except when they are sick-rooms), studies, bath rooms, billiard-rooms, dining-rooms, and other rooms used only spasmodically.

Any comparison between the costs of heating by gas and electricity on the one hand and coal on the other, which is simply based upon the respective costs per hour when burning, is quite misleading if what is desired is to decide which is more economical for practical use, year in, year out.

Misleading also is any such comparison which ignores the saving of labour effected

in the household when coal is done away with, or the advantages in the sick-room of a system of heating which can be relied upon to maintain the warmth of the patient without the need (or noise) of frequent replenishing, or the grave danger sometimes attending the dying-out of the fire.

In the case of a bedroom where a fire is only wanted in cold weather for half an hour in the morning, an hour for dressing before dinner, and half an hour at night, the cost of a gas fire would only be, on Mr. Dale's figures, less than 2d. per day. This is a third less than the cost of keeping a coal fire in all day, to say nothing of the work entailed in attending to it, laying it, cleaning the grate, carrying coals, etc., and the likelihood of its being out just when wanted.

The hourly consumption by a modern gas fire capable of heating a room of 2,600 cu. ft. capacity would not exceed 30 cu. ft. when full on, and ought not to average more than 25 cu. ft. per hour; and Mr. Hamilton Dickson must make another experiment if he wishes to have data which he can quote with the certainty of accurately representing the position to-day. His delight in anthracite-stove heating will not be shared by many of his countrymen, who have a sound preference for an open radiant fire which actively aids ventilation, and avoids the radical hygienic error of heating the air of (instead of the objects in) a room. Most of us prefer to reproduce in our rooms the effect of sunshine and fresh air by using a glowing radiant fire which ventilates rather than the stuffy atmosphere of a railway carriage or a Continental hotel.

This is why (fortunately for the atmosphere of our cities, which have been delightfully free from murky fog this winter), Mr. Goodenough concludes, the modern open gas fire, with its efficient flue for removing products of combustion, preventing smell, and assisting ventilation, is so rapidly displacing the coal fire and closed stove in our homes.

Mr. Hamilton Dickson, in reply to his critics, explains that his experiment extended continuously for six weeks.

If, he says, accepting Mr. Goodenough's data, and thus halving the consumption, then the cost of the unsatisfactory gas heating will work out at value 23.52d. for a week of seven days of four hours each. On the other hand, the completely satisfactory anthracite stove, which maintained a room at about 60 deg. F. in the coldest time of the year for a week of seven days of twenty-four hours each, cost 27.30d. He claims, therefore, that the anthracite stove is "over five times more economical than Mr. Goodenough's imagined gas-fire."

It is quite possible, he thinks, that Mr. Dale's "own experience" of 42½ cu. ft. of gas may tally with his (Mr. Dickson's) 52½ cu. ft., for Mr. Dale gives it as "the general average consumption," not stating the contents of the rooms heated, nor the temperatures attained, nor how the temperatures varied during twenty-four hours.

Mr. Dickson disagrees entirely with much else that Mr. Goodenough puts forward as pleas for gas stoves; for instance, the "efficient flue," the "radical hygienic error of heating the air"—a perfect mystery, but again such heating was strongly urged both by Count Rumford and Sir William Siemens, and trivial little matters like cleaning the grate and carrying the coals, and the fire being out just when wanted (his stove has burned continuously from September 28 till now), etc.—but he says that he refrains, for the sake of space, from refuting these points.



## INDIRECT LIGHTING.\*

BY F. W. WILLCOX AND H. C. WHEAT.

At the outset, the authors declared that the artificial production of light is perhaps the most inefficient and wasteful process to be found in any branch of engineering or science, and that this very fact is the strongest possible argument for using such arrangements of artificial light sources as will most economically meet the demand for properly distributed light. Efficiency of lighting is here to be used in the wider sense of visual efficiency, and not in the narrow sense of simply physical returns for energy expended (*i.e.*, lumens or foot-candles per watt of electricity or 1,000 ft. of gas). Systems of illumination cannot always be rated in terms of energy efficiency. In the case of lighting the term "efficiency" must be used in a broader sense of general visual efficiency, by which is meant the effectiveness of the illumination secured in enabling us to *see things easily* and in comfort.

Quoting Mr. Bassett Jones, who in a recent paper on interior illumination before the American Institute of Electrical Engineers, says: "The work to be done by many lighting arrangements is not only to be able to see and work with ease and comfort, but also to make the interior pleasant to the senses, and make its beauty visible. The authors comment that light and illumination cannot be measured in physical terms alone, but involve physiological and psychological facts and considerations as well. More stress, they contend, should be laid on the necessity for natural, rational, and comfortable illumination.

It is the object and purpose of illuminating engineering to correct faults and deficiencies, which have in the past been very largely due to a lack of suitable lighting appliances. It has only been in recent years that apparatus for producing satisfactory and effective illumination has been available. The gains in efficiency of the sources can be further

\* Extracts from a paper read before the Illuminating Engineering Society.

multiplied through the use of effective distributing appliances and the judicious arrangement of the lamps.

The *idea* of indirect illumination is not exactly new. We have had indirect lighting installations in years past, the most well-known application being the "cove-lighting." According to this method lamps were secreted in a groove or cove on the side walls just below the ceiling level, so that the reflected light was thrown out on the ceiling, and thus indirectly reflected on to the floor or objects. The limitations of such a system (which could frequently not be employed without structural changes) gave rather a poor start to indirect lighting. This is responsible in a large measure for the erroneous impression that the indirect method of lighting is necessarily expensive and prodigal of current. The success of indirect lighting awaited the development of new and improved appliances. This result was secured by the introduction of the system known in America as "eye-comfort," and in England as the "eye-rest" system of illumination. This system of indirect lighting employs a fixture in the form of an inverted bowl suspended from the ceiling of the room. These bowls contain reflectors of special mirror glass construction. They are scientifically designed to give the most effective distribution of light for indirect lighting methods. The reflectors used are known as "X-Ray," and consist of blown-glass blanks of correct form, which are in one piece and fire-glazed. These blanks are backed with pure silver put on by a special process, and this in turn is covered with an elastic enamel to protect and preserve it. The blanks are given a number of flutes and corrugations in order to prevent striations. These reflectors are opaque, so that opaque containers are also used. The latter usually take the form of bowls, which may be of metal, wood, glass, earthenware, plaster, etc., so that not only is there the possibility of an enormous number of different designs, but also a large selection of material from which to execute them.

It should be noted that indirect lighting must be done in a really scientific



CONCEALED LIGHTING, ST. MARY'S CHURCH, WARWICK,

manner to be successful. In the attempt to get away from bare lights and excess brilliancy, the natural step was to increase the light-giving area. This was generally done by the use of diffusing globes over the lamps. The indirect system went a step further, and increased the light-giving area by using the largest available surface in the room—that of the ceiling.

The authors then passed in review the various direct systems of artificial lighting in use, comparing them point by point with indirect lighting, explaining that with direct lighting the greater part of the illumination is received directly from the light units or sets of lamps and reflectors, or from a light source enclosed in diffusing globes. With semi-indirect lighting the light is partly transmitted directly from the lighting units through a diffusing medium, and partly indirectly by reflection from the ceiling or other surface; while with indirect lighting no light is received directly on the illuminating plane, but only indirectly through reflectors from a second surface or body. In the form of indirect lighting considered under this heading the light is directed away from the objects to be illuminated and thrown upon the ceiling, from which it is reflected upon the working plane.

Among the merits that the authors claimed for the indirect system were that it reduces glare to a minimum, softens shadows, and secures evenness of illumination, and consequent comfort and agreeableness to the inmates; and that indirect lighting requires fewer points than direct lighting, with the result that with the former system it is possible to treat the illumination of a room as a whole, while with the latter it is treated in sections. Its application to various services, in public and private buildings, was described at considerable length. Two examples are shown in the accompanying illustrations.



INDIRECT LIGHTING: HOTEL BARBERS' SHOP.



## ENLARGEMENT OF PADDINGTON AND WATERLOO STATIONS.

Paddington, owing to the foresight of the great Brunel, has been in the fortunate position of being amongst the last of the great London termini to require enlargement. Some six years ago, however, the congestion in and around the station had increased to such an extent that strong measures were necessary. A most comprehensive scheme of improvements and enlargements was drawn up. It is now approaching completion, and is perhaps one of the most notable examples of work of this kind yet carried out by an English railway company.

The first step was to move the engine sheds from Westbourne Park, the Great Western Railway's Willesden junction, to Old Oak Common, near Wormwood Scrubbs, some miles further down the line. By this transfer not only was it possible to house under improved conditions the large locomotive stock required for the London district, but the site of the old sheds has been used to obtain additional running lines and for the relief of the Paddington goods station, where the congestion has become serious. This station, it may be noted, is also being enlarged. Advantage was taken of the construction of the new locomotive dépôt to build extensive carriage sheds in the neighbourhood. The next move, preliminary to laying down new tracks outside Paddington, was the demolition of all the old masonry road bridges within a distance of three miles from the terminus, and their replacement by metal structures. This work, which is now practically finished, enables additional tracks to be laid down by reason of the fact that the piers of the steel bridges occupy considerably less space than the supports of the old bridges. The third portion of the work has consisted of laying down the much needed new tracks. New retaining walls have been built for a considerable distance outside Paddington, and a large proportion of the excavation for the new lines is also finished.

The enlargement of Paddington itself is in two parts. The first portion has been the construction of the new long platform, an extension of the existing main departure platform. It is on the arrival side of the terminus that the new station proper has been built. The building, which is itself a good-sized station, is practically finished, but it has not yet been connected with the lines outside the station. It is hoped, however, to have the new station open for traffic within a few months.

The works recently carried out and at present in hand at Waterloo affect the terminus itself more than the approaches to the station. The magnitude of the scheme can be gauged from the fact that the total cost will amount to about £2,000,000, while the area of the station will have been increased from 16 to 24½ acres. The difficulties of rebuilding the station have been greatly increased by the nature of the soil. It was necessary, in the first place, to acquire a considerable amount of property and to rehouse the occupants of these dwellings. Briefly stated, the alterations will have the effect of giving eight approach lines into the station, expanding to eleven over Westminster Bridge Road, and radiating into thirty lines at the station itself. Of these thirty lines, twenty-six are to be under cover. They will serve twenty-three platforms of an average length of 700 ft., of which 500 ft. will be under cover. The

average width of the platforms will be 30 ft. to 40 ft., and reinforced concrete paved with asphalt has been the material chosen for their construction. All users of Waterloo Station are familiar with the present unsightly jumble of roofs. Such a condition is due to the fact that additions to the station have been made continuously since 1860, and each addition has simply been tacked on to existing buildings. The present rebuilding plan provides for a uniform scheme, an illustration of which is given by the recently opened new South Station. Advantage has been taken of the rebuilding operations to remodel the workshops and offices of the Waterloo and City Electric Railway, which is now vested in the South-Western Railway Company. New offices, waiting, and refreshment rooms have been planned on a lavish scale, and the booking hall and "concourse," or circulating area, as well as the luggage hall, have been designed in the spacious style now adopted by the architects of the great terminal stations in the United States of America.

### A SAXON TIMBER CHURCH.

In many of the northern countries of Europe, as well as in England, there is abundant evidence of the use of wood in the Middle Ages for the construction of sacred buildings. "There was a time," says the Venerable Bede, "when there was not a stone church in all the land, but the custom was to build them all of wood." The earliest cathedral at York and the Church of Lindisfarne, in Holy Island, were built of wood. The best account of these early wooden churches, writes Mr. A. G. B. Atkinson in the "Daily News and Leader," is to be found in Professor Dietrichsen's book on the Norse Stavekirker. In Norway some twenty-four out of 1,000 or more of the original stavekirker still exist. In England there remains only one such wooden church, the nave of which is a genuine example of Saxon timber building—Greensted, in Essex.

The little church of Greensted lies a mile west of Ongar and about twenty miles north-east of London, and is almost screened from the observation of the traveller approaching from either direction by tall trees. It is in all probability due to its exceptionally sequestered position, as well as to its small size and insignificant endowments, that it has escaped unharmed during 900 years.

The accredited tradition connects the foundation of the church with the history of St. Edmund, the martyred King of East Anglia, who was murdered by the Danes in 870 A.D., in the twenty-ninth year of his age. When the saint's body was brought from London to Edmundsbury in 1013, a temporary resting-place was afforded the remains at Greensted, where the monks hastily erected a wooden chapel to give them shelter.

There is much, however, to suggest that the fabric is of still older date. If the building had been erected for the reason assigned, it surely would have been dedicated to St. Edmund rather than to St. Andrew, as is the case. Moreover, the method of construction is not that which was usual in the eleventh century, when churches of stone were common, but belongs rather to an age anterior by one or two centuries. The structure also shows no signs of hasty erection, but is substantially knit together of the trunks of old oak trees placed one against the other, the round side being outermost. We may therefore from this and other evidence

conclude that the church was preserved when buildings of stone became common, because of the sacred use to which it had been put, rather than that it was hastily erected to give a night's shelter to the body of the saint.

In 1848 a thorough restoration of the church became necessary. The oak sills, which had been laid on the earth with some rough flint put under at intervals, had become so rotten as to let the upright timbers drop through. The greater part of the old oak timbers were preserved, but it was necessary to cut some five inches from the lower ends owing to the ravages made by the wood beetle. A course of bricks was placed beneath, and on this the oak trunks still rest. For many centuries the cleft logs or trunks had been covered with plaster within and without, which had doubtless been instrumental in preserving them from the weather. This plaster was now removed. The trunks forming the walls number twenty-five on the north side, and twenty-one on the south. The total length of the nave is 30 ft. and the width 14 ft. The roof was originally, no doubt, of simple thatch. To this primitive structure was added a chancel of later date.

That now existing, which may date from the reign of Henry VII., probably replaced one of the Norman period, and relics of this earlier flint chancel may be seen underneath the present brickwork. A tower and spire covered with shingles at the west end are of fifteenth-century date.

Hard and sound, though beaten by the storms of nearly a thousand winters, the ancient trunks of Greensted Church yet promise to endure a thousand more.

### THE MALL ARCHWAY.

The sale by the London County Council of strips of land at Charing Cross does not meet with the approval of the Westminster City Council, although the London County Council has secured such a remarkable price that the yield represents just over one million per acre. The narrow strips, of course, were too insignificant for separate development, and were sold to the Liverpool, London, and Globe Insurance Company, whose premises adjoin the odd strips. The Improvement Committee of the Westminster Council object to the sale of the land, because it seems to imply that all hope must be abandoned of making a worthy opening from Charing Cross to the Mall. The archway will always be partly hidden by the buildings in Charing Cross. The Improvement Committee say:—"We have addressed a communication to the chairman of the County Council, calling his attention to the matter, and asking whether, in view of its importance, he can take any steps to suspend the completion of the sale, pending the consideration of the matter by the City Council." It may be added that the scheme originally proposed to open up the Mall would have cost the sum of £150,000. The Mall, with its fine arch, was created by the Office of Works without consulting the London County Council. When the scheme was finished the discovery was made that to enable use to be made of the Mall, buildings in Charing Cross had to be purchased and demolished to secure a right of way. The Office of Works of the London County Council could not agree as to the execution of this improvement, and consequently an opening was made in Charing Cross sufficiently big to enable the Mall to be made available for traffic, but not enough to prevent the archway from being partly hidden behind the buildings in Charing Cross.



## SOCIETIES AND INSTITUTIONS.

## BRISTOL SOCIETY OF ARCHITECTS.

*Dr. Fryer on St. David's Cathedral.*

Under the auspices of the Bristol Society of Architects, Dr. Alfred C. Fryer delivered a lecture last week on "A Pilgrimage to St. David's Cathedral."

Dr. Fryer remarked that the visitor to St. David's Cathedral cannot fail to notice that it is much more ornamental within than without. The arches exhibit a wonderful exuberance of decoration, and the architect seems to have telescoped the triforium and the clerestory together, and has put them under one arch. The nave is the work of Peter de Leia, the second of the Norman Bishops of the See. The floor of the nave slopes steeply towards the beautiful rood screen built by Bishop Gower. On the west face three canopied niches form a reredos for the altar of the Holy Cross, while on the south side an enriched compartment contains the effigy of Bishop Henry Gower, the consummate architect. Passing through the rood screen we enter the ritual choir. It is bounded by a parclose screen. The screen is of early date, but severely plain. The opening is not central, and the screen is in a somewhat oblique direction across the cathedral. It is not unlikely that this screen marks an ancient tradition, for Professor Freeman found instances of such screens at Malmesbury and Dorchester Abbeys. The woodwork in the choir is exceedingly good, and the misereres are both numerous and grotesque. One represents a carpenter building a boat, while his fellow is drinking from a jug. Another is a boat at sea with monks in it; one is sick, another is laughing, and another is rowing. Another is a fox in a hood handing a small cake to a figure with a human head, but with the body of a goose. The east wall of the Presbytery was originally pierced by three lancet windows richly moulded, and pronounced by Sir Gilbert Scott to be among the finest in the kingdom. They are now blocked and filled in with excellent mosaics. The history of the chapels at the east end of the cathedral is a curious one. When the Lady Chapel was built, at the beginning of the fourteenth century, it was resolved to retain the lancet windows in the east wall of the Presbytery. The aisles, therefore, were produced eastward and returned into the ante-chapel of the Lady Chapel, leaving a clear space of 15 ft. eastward of the Presbytery open to the sky. Two centuries later Bishop Vaughan roofed in this space, and dedicated it as a Chapel to the Holy Trinity. Two shrines remain, that of St. David and that of St. Caradoc. Both are of simple workmanship, and contain recesses for the offerings and holes pierced for touching the "feretrum." Bishop Thirlwall declared that the architect who constructed St. David's Cathedral seemed determined to place in the furthest extremity of our island the standard of the utmost advancement of his art at the period of its most determined progression. These facts render the building wonderfully interesting, and a valuable landmark in architectural history, taking in the extreme west, a position parallel to that held by Canterbury in the extreme east of the island. Dr. Fryer described the ruins of St. Mary's College and the Bishop's Palace. The latter, he said, is one of the finest specimens of the fourteenth century domestic architecture in the kingdom. It is now in a ruinous condition, hoary with age. Its splendid banqueting hall and mighty kitchen tell us of feasts and fes-

tivities of its early days, and secret passages suggest sliding panels. This wonderful building was the work of Bishop Henry Gower, and the most striking feature, seen from all sides, is the open arcading which forms the parapet. This consists of a series of arches with slender octagonal shafts in front resting on corbels. The great hall and chapel exhibit some fine decorated details.

## JUNIOR INSTITUTION OF ENGINEERS.

*The Hot Panel and Hot Floor Systems of Heating.*

In a paper read before the Junior Institution of Engineers, a method of warming buildings, known as the "Hot Panel and Hot Floor Border System," which was originally devised by Mr. A. H. Barker, was described by Captain H. Riall Sankey, who has recently applied it to the Royal Liver Buildings at Liverpool. It is also used in certain portions of the new premises of the Amalgamated Press in Farringdon Street, and in the Midland Adelphi Hotel at Liverpool.

It was generally conceded, said Captain Sankey, that for comfort, when sitting in a room without a fire, an air temperature of about 63 deg. F. was needed; and, in order to obtain this temperature, the surface of ordinary radiators required to be at the fairly high temperature of, say, 150 deg. to 180 deg. F., unless a commercially impossible amount of heating surface was provided. This temperature was sufficient to decompose the dust in the air, producing a disagreeable and characteristic smell. Moreover, the humidity was reduced unless special precautions were taken; the result was a disagreeable sensation, and even a feeling of cold might be produced owing to the rapid evaporation of moisture from the skin. When radiant heat from a fire was available, the air temperature could be as low as 55 deg. F., or even 50 deg. F., and yet the sense of comfort and warmth was greater than in the previous case—i.e., when there was little or no radiant heat. To maintain the temperature at 50 or 55 deg. F., a hot-water system of heating would be required in many cases; but the temperature of the heating surface could be reduced, and the air was not dried to the same extent. Such a system, although ideal, was more costly; and, moreover, the expense and trouble of laying fires, cleaning out fire-places, and removing ashes, which were a serious drawback in the case of large offices, were not obviated.

The hot panel and hot floor system did not unduly heat the air, and it supplied the radiant heat needed for comfort. A hot panel consisted essentially of a small pipe bent backwards and forwards and embedded in a semi-conducting composition. Half-inch, drawn, lap-welded steam pipe was used. The heat-carrying medium, say hot water, circulated in the tube, and the heat was conducted through the walls of the tube to the composition, through which it spread to the surface of the panel, whence it was radiated into the room; in effect, heat at a comparatively high temperature issuing from a small surface was converted into the same amount of heat at a lower temperature issuing from a large surface. A hot panel might contain more than one length of tube, in order that the flow in each length might be controlled by external valves. A hot

panel could be made up in an iron frame, thus forming a detached unit similar to the ordinary radiator, or it might be built up against a wall very nearly in the thickness of the plaster.

Hot borders were formed by placing drawn, lap-welded, half-inch pipes about an inch below the level of the floor, close to the walls, around the whole or part of a room, and embedding these pipes in semi-conducting composition. A hot border of any width desired, say from 6 in. to 18 in., could thus be formed. This arrangement was specially suitable for passages. Similar pipes could also be embedded along the cornices of a room. In all cases the joints were made by oxy-acetylene welding, and with competent workmen this method of making joints had been found to be entirely satisfactory. The semi-conducting composition had to be chosen with great care so as to obviate cracks, which otherwise would be produced by the expansion and contraction of the hot pipes. The medium carrying the heat from the boilers or calorifiers to the hot panels or hot borders might be either hot water or steam, and the heating apparatus and pipe system was substantially the same as that adopted for ordinary radiators. In very high buildings heated by hot water difficulties arose with ordinary radiators owing to the high pressure of the water at the lower floors, but this difficulty did not occur in the system under consideration.

At the Royal Liver Buildings vertical warming panels were arranged on the external walls, extending the whole width of the room. The panels were fixed about 1½ in. away from the walls, leaving a space behind, to which fresh air was conveyed through a fresh-air grating fixed in the external wall. A shutter with regulating gear was provided to adjust the admission of air, and the main wall behind each panel was coated with non-conducting plaster. The panels were so constructed that radiant heat was given off from the front, the side facing the wall being utilised to warm the incoming air. A perforated metal plate was fixed over the top of the air space, through which the warmed air entered the room.

A narrow warm floor border was formed on two or more sides of each room, according to the exposure of the external walls, and the semi-conducting material covering the pipes in the border was utilised for covering the whole floor, so that a hygienic jointless flooring was provided throughout the whole building. The corridors were warmed by means of 6-in. wide borders formed on each side, running the whole length of the corridors. The panels and floor borders in each room were controlled by independent valves, so that the occupants could regulate the temperature to suit their own requirements. The warm borders in the corridors were divided into sections, each similarly controlled. Hot water heated by the exhaust steam from the electricity plant was circulated through the floor and panel coils, and generally a surface temperature of 100 to 110 deg. was maintained.

About 120,000 sq. ft. of radiating surface were provided. The length of half-inch pipe in the panels and borders was about fifty miles, and there were 19,200 ft. of rising mains, the latter weighing about sixty tons. Altogether about 30,000 oxy-acetylene welds were made, none of which had leaked. There were 1,200 panel con-



rol valves (half-inch), and about 900 multiple way valves. In order to control the temperature, from the calorifier-room, ten Barrett thermometers had been placed at certain selected points in the building.

#### BIRMINGHAM ARCHITECTURAL ASSOCIATION.

##### *Mr. Leslie Wilkinson on Students' Work.*

At a meeting of the Birmingham Architectural Association held at the Exchange Buildings, Stephenson Place, last week, Mr. Leslie Wilkinson, A.R.I.B.A., addressed the members on "The R.I.B.A. Prize Studentships and Students' Work in General." He referred to the system in vogue in some places for the training together during the first year of sculptors, artists, and architects. He commended the idea as being beneficial to all three, and said he he wished it could be extended. With regard to domestic architecture, he regretted the custom of leaving the decoration and furnishing of the interiors to large firms, whereas it was purely the architect's work. He thought they ought to start by setting their own houses right in this direction. If they simply went about criticising generally, they would merely be set down as so many cranks. In the same way he deplored the large, unsightly lettering over places of business in modern towns, and suggested that they should refuse to deal with firms that ruined the architectural beauty of the buildings in that way. Lettering could be done artistically, and in keeping with the design of the building.

#### LIVERPOOL ARCHITECTURAL SOCIETY.

##### *Mr. E. Guy Dawber on Fountains.*

At a meeting of this society on January 22nd, Mr. H. Grayson (president) made, on behalf of the society, a presentation of a silver and engraved casket to Mr. H. L. Beckwith on his approaching marriage. He remarked that while the society had always been admirably served by its hon. secretaries, the seven years spent by Mr. Beckwith in that office would be recognised by hearty cheers as he handed him the presentation.

Mr. E. Guy Dawber, F.R.I.B.A., read a paper on "Fountains." He credited the Romans with being the great pioneers of civic water supply and of artistic fountains, while he freely acknowledged the French aptitude for designing fountains. He concluded a critical and historical lecture and wide survey with a pungent reference to the disfigurement of English cities (he made no especial reference to Liverpool) by fountains and statues which are rather obstructive than ornamental. He said:—"It is somewhat depressing to think of the extraordinary lack in London, and England generally, of fountains worthy of the name. The older examples have all disappeared, and but few good modern ones have taken their places. When we have named Mr. Gilbert's fountain in Piccadilly Circus, Mr. Colton's in Hyde Park, and one or two others, we have exhausted the list. Some dozen others, scattered about the streets and squares of the metropolis, can under no circumstances lay claim to any artistic merit, and merely represent the work of the marble and granite mason. The donors of fountains, instead of going to an artist to make their designs, almost invariably place the work in the hands of tradesmen, with the only natural result that our streets contain the most vulgar and commonplace examples of the monumental mason's art, works of no value whatever from the artistic point of view. Fountain designs with any pretence to originality seem to be en-

tirely thrown away upon the English public; to the average Englishman a fountain merely means a jet of water spurting up from a basin and falling into it again. Anything new and original was usually "wrong" and out of place, though, of course, there are exceptions, and in many modern English gardens can be seen admirable examples of fountain designs; but these, unfortunately, are only for the favoured few, and the general public have to put up with the monstrosities in our streets. When a public memorial is proposed to be erected in England, the question usually arises whether it shall consist of a statue or a drinking fountain. A fountain is the favourite provincial tribute, because it gives work to a local tradesman, and he usually takes a pride in making it look as little like a fountain and as much like an abstract architectural excrescence as he can. In London and the large towns statues are more favoured, as being more artistic, and all that is demanded of them is that they shall bear some resemblance to a human being, either engaged in profound thought about nothing or else making an eloquent speech to nobody. Usually when the fountain is built no one looks at it, and when the statue is erected no one looks at it.

#### LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.

##### *Mr. A. W. Hennings, A.R.I.B.A., on "Old Buildings in Cheshire."*

At a general meeting of this society held at the society's rooms, the Leeds Institute, Cookridge Street, on January 22nd, the president, Col. Kirk, A.R.I.B.A., in the chair, Mr. A. W. Hennings, A.R.I.B.A., of Manchester, read a paper on "Old Buildings in Cheshire." He showed by means of lantern slides many interesting examples of village churches erected from the 13th to the 16th centuries. Local materials—large blocks of red sandstone—were generally used, with the buttresses shallow and the wall surfaces devoid of mouldings, relief being obtained by the use of small pieces of ornament, usually of an heraldic character. Many examples of houses were shown, with the typical oak half-timber construction, the spaces being filled in with lime concrete, and the whole carried on a stone foundation.

#### ULSTER SOCIETY OF ARCHITECTS.

##### *Annual General Meeting.*

The annual general meeting of this society was held at the rooms, 9, Howarth Street, on January 20th, with Mr. H. Seaver (president) in the chair. In the annual report it was stated that there had been little alteration in the numbers of the society during the year. One member resigned, three members were transferred from associateship to membership, one new associate was elected, and three students became associates. The Belfast Corporation recognised the position of the president during the year by appointing him, in conjunction with the City Surveyor, assessor in the competition for workers' dwellings promoted by them. A resolution in favour of codifying the local Acts of Parliament relating to buildings was passed by a general meeting and duly forwarded to the Town Clerk. This was taken into consideration by the Law Committee of the Corporation, and some attempt made to give effect thereto, but so far no definite steps have been taken. The Corporation Library and Technical Instruction Committee has, during the year, appointed an Advisory Art Committee to deal with the question of the acceptance, purchase, or exhibition of all pictures or objects of art.

On this committee they co-opted a member of the society's council in addition to the other member of council who sits as a corporator. A suggestion has been made that in connection with the Municipal Technical Institute a course of architectural instruction should be arranged. It is understood that the society's council will be consulted with reference to the details of such a scheme, so that it may be drawn up on effective lines and administered by efficient instructors. Such a scheme, if inaugurated, might be co-ordinated with a course in the Queen's University, Belfast, thus providing a suitable liberal education combined with that of a technical character for the architectural student.

#### GLASGOW TECHNICAL COLLEGE ARCHITECTURAL CRAFTSMEN'S SOCIETY.

At the seventh meeting of the session, Mr. A. H. Purdie presiding, a lecture was delivered by Mr. A. F. Wilson entitled "Hints on Heating and Ventilation." In the course of the lecture, which was illustrated by lantern slides, Mr. Wilson described various systems of heating and ventilation, and enumerated certain faults and objectionable effects. He gave a short description of the Ozonair apparatus for maintaining the freshness of the air in public buildings, and mentioned that the new Justiciary Buildings were the first of Glasgow public buildings to be equipped with this means of ventilation.—T. DAVIS, joint-secretary.

#### LONDON MASTER DECORATORS' ASSOCIATION.

The quarterly general meeting of the members of the London Association of Master Decorators was held at the Holborn Restaurant on January 14th, when the chair was taken by Mr. John Anderson, the President of the Association. Mr. H.A. Campbell (past President) introduced a discussion on "The Relative Values of Water and Oil Paints." In the discussion which ensued, it was generally agreed that while these materials had merits of an artistic and useful character, yet their relative values as to durability did not compare favourably with oil paints. It was decided, however, that the discussion should be continued at a later date, embodying also that of "leadless" paints, and the members were invited to tabulate data with reference to same.

The following letter received from the London County Council was read, and received with much satisfaction.

(Copy.)

London County Council, Education Offices, Victoria Embankment, W.C. January 7th, 1913.

##### *Re Training of Boys.*

SIR,—I am directed to inform you that the Council has recently dealt with the question of training boys for the painting and decorating trades, and in connection therewith the Council has considered the representations made by the London Association of Master Decorators.

I am to point out that the Council is in a position to train immediately twenty boys per annum for the Painting and Decorating trades at the L.C.C. school of building, Brixton, and that, having regard to the proposed extensions of the facilities for giving instruction in building trades subjects in London, the Council expects to be able, very shortly, to train thirty other boys per annum in the schools in the North and West of London for the painting and decorating trades. The Council notes that the London Association of Master Decorators



stated in their letter of November 21st, 1912, that they were prepared to guarantee employment for at least 26 boys, and the Council accordingly hopes that the Association will be in a position to assist in finding employment for the boys whom the Council trains and in placing them with reputable firms on an approved scale of wages, for a period of three years after the completion of the training.

The Council is prepared to afford facilities for afternoon and evening classes in North, West, and South London whenever a suitable number of applicants is forthcoming, and is arranging to form a Consultative Committee for painting and decorating trades with a view to increasing the scope and utility of the technical classes provided.—I am, Sir, your obedient servant, Signed B. M. ALLEN (Deputy Education Officer).

This letter was referred to the Education Committee to be dealt with and at the same time it was agreed that as much publicity as could be given to the matter would result advantageously to the trade.

## NATIONAL FEDERATION ANNUAL MEETING.

The annual meeting of the National Federation of Building Trade Employers was held on Wednesday last at the Trocadero Restaurant, Piccadilly Circus, when the chair was occupied by the retiring President, Mr. James Wright, of Nottingham. The thirty-fifth annual report having been received and adopted,

Mr. Moffat, of Birmingham, drew attention to the question of workmen's compensation. He knew of a number of cases of trivial accidents, now several months old, in which the men would not give a final receipt. He also understood that the Insurance Commissioners were declining to allow these settlements to be registered without the approval, not only of the County Court judge, but of themselves. Referring to forms of contract, Mr. Moffat said that they in Birmingham now had a form which they would certainly sign in preference to that of the R.I.B.A. He would be pleased to give the form, with notes, to anybody who cared to apply, as soon as it was received from the printers. In public contracts, he continued, a custom had grown up of insisting upon two securities to the extent of 25 per cent. of the gross amount of the contract. It seemed hardly credible, but this was being demanded in jobs amounting to only £125, and when, moreover, the builder was willing to be paid at the end of the work. He proposed that the matter be drawn to the attention of the Local Government Board.

Mr. Hope said it was his opinion that they would not get an interpretation from the Local Government Board. The point should be brought before the High Court for a ruling. They should be careful, he thought, in lightening the obligations of reputable contractors and builders. He feared illegitimate competition. Undesirable men would be able to compete with the others on their own terms.

The acceptance of the auditors' report and the accounts and balance sheet having been moved and adopted, Mr. Sinclair made a statement with respect to the subscription for 1913, which it was decided to increase.

### Provisional Sums in Quantities.

The secretary (Mr. A. G. White) then read the report of the Sub-Committee on provisional sums in quantities. This re-

port made out a strong case for some measure of reform, and concluded with the suggestion that general principles should be agreed upon between architects and builders in order to limit the extent of the use of provisional sums. The general principles, it was stated, would seem to be only these: (1) That the measure of the responsibility of the contractor for the execution of the contract was the measure of his right to execute it by his own agents, so long as the work was done to satisfaction. (2) That derogation from the right set forth in (1) should only be permitted on the ground that the contractor is not in a position to execute satisfactorily by his own agents the work required. (3) That however many provisional sum reservations may have to be made in connection with the obtaining of tenders, so soon as the contract was let the contractor's right under (1) and (2) should be explicitly recognised. (4) That the specialist items should be only those which could not be measured and billed into the quantities by any competent quantity surveyor.

Mr. Hope, moving the adoption of the report, uttered a warning with regard to legal decisions in builders' cases. Disputes were often so involved that a judge found great difficulty in comprehending the merits of the case. Mr. Hope mentioned a case in which a builder used certain materials for which the architect gave the order. The judge decided that the contractor would have to pay, holding that there was an implied promise to do so. The case went to the Court of Appeal, and it was decided that there was no implied promise to pay. All builders' cases, said Mr. Hope, turned on the way in which the judicial bench regarded the facts. He mentioned, in conclusion, that in conjunction with Mr. Valentine Ball he was bringing out a little book with the object of popularising the national form of contract, and securing its general adoption.

Mr. Davidson protested against the small percentages on p.c. sums for which builders were expected to carry out contracts.

Mr. Moffat suggested that an agreed profit should be arranged with the local association and printed in the bill, and that it should be part of the agreement that if lump sums were deducted they be treated as deductions over those portions of the quantities which were not provisional amounts at all.

Councillor Easten said if they got an arrangement to put on 10 per cent., the men who were most clamorous would be the first to cut down in order to make it ineffective. The difficulty was that architects and public bodies could go to specialists and get goods for less than the price at which they were supplied to builders.

Mr. Barlow said that in Nottingham they had been trying for some time to make it possible for contractors to obtain a profit on p.c. sums, and they had succeeded. Unless the Federation as a whole insisted on percentages being put on p.c. sums, nine out of ten builders would not do it. After further discussion the President said that the difficulty could be overcome if the architect only specified the goods, allowing the builder to order them. They had been successful thus far in Nottingham.

Alderman Bowen said if they could only get architects to provide a definite percentage for the builder in the provisional sum, the problem would be solved.

On the motion of the President the interim report of the Finance Act Valuation Sub-Committee was adopted, Mr. Wright having explained that the Federation had

a strong case prepared, and were only awaiting the opportunity of an interview with the Chancellor of the Exchequer.

### Contract Form Amendment.

The Secretary then read the report of the Sub-Committee on proposals for the suggested amendment of the form of contract. The following suggestion for the amendment of clause 30 had been made by the Lancashire, Cheshire, and North Wales Federation:—"That the contractor shall be entitled to a certificate as per arrangement from the architect when the works are practically completed, or occupied, or habitation certificate granted, and, in like manner to a certificate for the balance within the time arranged. *If for any reason the final payment be withheld beyond the specified time, then the contractor shall be entitled to 5 per cent. interest on the balance.*" (The italics represent the proposed additional words.) The Committee, continued the Secretary, after taking legal advice on certain points, recommended:—That for immediate purposes members be advised in cases of undue delay in settlement of accounts to give notice in writing that they will claim interest on the delayed balances from the expiry of the period of maintenance, that a form of letter approved by the Federation's solicitors be used for the purpose, and that when the next opportunity for revision of the contract occurs, an attempt be made to introduce some obligation into clause 30, to the same effect. The Committee also suggested the insertion in copies of the form of contract of a circular setting forth useful information as to contractors' responsibilities, and as to disclaimers of responsibility for the work of specialists nominated by the architect.

Mr. Smethurst moved the adoption of the report, and said that unless something was done soon they in Lancashire would move for themselves.

Mr. Hope, in seconding the motion, said that Lancashire and Cheshire were trying to get a builders' contract for builders, but were they going to get a contract that would be suitable to all? The policy of reprisal, he thought, would be met by an architects' contract for building owners.

Councillor Matthews said they had in Lancashire a form which was undoubtedly superior to the present one, and they endeavoured to use it. It was unreasonable to expect them to tolerate imperfections.

The President said that many difficulties would be avoided if builders would only take advantage of the provisions of the present contract.

Mr. Shepherd then summarised the report of the Employers' Parliamentary Council, which was adopted.

Mr. Woods initiated a discussion on the control of trade conditions, with special reference to the paper on the same subject read by Mr. A. G. White before the Conference of Secretaries. Many speakers joined in the discussion, Mr. Boot mentioning, incidentally, that Sheffield University was trying to get a Faculty of Building Construction. The unfair competition of private firms was the subject of strong protest from the President and other speakers.

### Election of President.

Other business having been dealt with, Mr. Wright proposed the election of Mr. Frederick Higgs as President for 1913. In seconding the nomination, Mr. E. J. Brown mentioned that Mr. Higgs had been President of the London Master Builders' Association, and of the Institute of Builders, and they were now electing him President of the National Federation. He (Mr. Higgs) would be the second man to wear the triple crown. Other gentlemen



having given hearty support to the nomination.

Mr. Higgs, in reply, said he regarded his election not only as a personal honour, but as an honour to London, in which city he had been engaged in the craft of building for thirty years.

Hearty votes of thanks having been given to the retiring President, to Mr. J. W. White, and to the Secretary and staff, it was announced that the next (July) meeting would be held in London. Mr. Thomas, of Cardiff, and Mr. Sinclair, of London, are now Senior and Junior Vice-presidents respectively.

Certain other matters were then submitted for consideration, including a request by the Liverpool Master Builders' Association for the Federation's support in their protest against the action of the St. Helens Corporation in demanding priced quantities with estimates.

It was decided to give this support on condition that St. Helens became affiliated to the Lancashire and Cheshire Federation.

## IN PARLIAMENT.

(By Our Press Gallery Representative.)

### Proposed New Thames Embankment.

Captain Murray asked the Chancellor of the Exchequer whether his attention had been drawn to the scheme for providing an embankment on the south side of the Thames from the new County Hall to the projected St. Paul's Bridge, and to the suggestion that the London County Council and the various local authorities concerned should be asked to contribute £500,000 towards the cost of the scheme, while the balance of approximately the same amount should be provided by the Road Board, and whether the funds at the disposal of the Road Board could properly be applied to schemes of this description.

Mr. Lloyd George replied that no application had been made to the Road Board in connection with the scheme referred to, and he was therefore unable to reply to the last part of the question.

### The Approach to the Admiralty Arch.

Mr. Kellaway asked Mr. Wedgwood Benn, as representing the First Commissioner of Works, whether his Department was responsible for the unsightly condition of the Charing Cross approach to the Admiralty Arch; and, if not, whether he could take steps to induce the responsible authorities speedily to amend what was at present a disfigurement of one of the finest sites in London.

Mr. Wedgwood Benn replied that that was a matter outside the jurisdiction of the Office of Works, and one for the London County Council to deal with.

Sir William Bull asked why the Government had been advised to sell the vacant land at the entrance to the Mall in Cockspur Street, having regard to the fact that permanent buildings would be placed thereon, and therefore preclude all chance of the Admiralty Arch having an approach to Trafalgar Square adequate to its position, and whether this meant that all idea of acquiring part of Drummond's Bank and the opposite corner had now been abandoned.

Mr. Wedgwood Benn replied: The land referred to belongs to the London County Council. I am informed that they have sold it, thereby precluding, as the honourable member rightly says, all chance of the construction of a worthy approach to the Admiralty Arch.

### Educational Building Requirements.

Mr. Charles Bathurst asked the President of the Board of Education whether, in view of the increased demand throughout the country for instruction in handicraft and domestic economy, and the tendency of local education authorities to construct buildings for these purposes of creosoted timber, corrugated iron, matchboarding, and other inexpensive materials, the Board could supply authorities with model plans and elevations of such buildings, and advice as to their construction and materials.

Mr. Trevelyan, who replied, said the Board were always ready to place at the disposal of local authorities all the information they had in regard to materials and buildings suitable for classes in special subjects. Experiment and development in the use of quasi-permanent material and the internal arrangement of the buildings were to be encouraged. The issue of model plans and specifications would, he was afraid, tend to stereotype one particular kind of building and would therefore be undesirable. He added that if personal application was made information would be supplied to the local education authorities.

### Increment Duty.

Mr. Pretymann having again raised the question of increment duty being charged upon the profits of builders, Mr. Masterman, in the course of his reply, maintained that it was a travesty of the facts to say that the Commissioners of Inland Revenue only deducted the builder's cost of building when they came to estimate the proportion which ought to be the right subject of increment value duty. What they said was that they gave the builder all the value of the profits which were attributable to the building. That was subtracted from the consideration which was the actual cash in his hands.

## R.I.B.A. PROBLEMS IN DESIGN.

The Board of Architectural Education of the Royal Institute of British Architects announce that the designs submitted by the following students who are qualifying for the final examination have been approved:

Subject VI.—*Design for a Colonnaded Screen.*

Cedric Ripley.  
R. S. Wilshire.  
W. E. Woodin.  
A. L. Frenker.  
A. H. Owen.  
E. F. Bothwell.  
L. S. Henshall.  
A. F. Kaltenbach.  
P. G. White.  
F. Williamson.\*  
D. H. Walker.  
Mary Shewen†  
E. Hasmann.†  
R. Duckett.

W. E. Foale.  
E. A. L. Martyn.  
J. O. Thompson.  
E. N. Frankland-Bell.\*  
P. T. Wilsden.  
E. Gee.\*  
A. E. Davidson.\*  
A. E. Stott.\*  
H. E. Rooley.  
B. N. Weekes.\*  
W. H. Thompson.\*  
R. A. Walter.  
J. O. Cheadle.

*Design for a Fire Resisting Lock-up Warehouse.*

O. Newbold.\*  
R. A. Barber.  
A. R. Shibley.\*  
G. Davidson.\*  
R. S. Dixon.\*  
E. R. F. Cole.\*

P. D. Bennet.  
B. Newbould.\*  
A. Wilson.\*  
S. G. Soper.  
J. A. Clarke.  
R. O. Lawrence.\*

\* Liverpool School of Architecture.  
† University College.

## OUR PLATE.

### The Fitzwilliam Museum, Cambridge.

This building was erected to receive the pictures, engravings, books, etc., bequeathed to the University of Cambridge by Viscount Fitzwilliam, who died in 1816. A competition was held, and the design of Basevi was selected. That architect, however, never lived to see his work completed, as he was killed in 1845 by falling

from an opening in the floor of the west tower of Ely Cathedral. The completion of the building was undertaken by Cockerell, and the result is a façade which calls forth the greatest admiration, alike for its general massing as for its detail and ornament. The name of Mr. E. M. Barry is also associated with the building, he having designed the decorations for the entrance hall and staircase.

## COMPETITIONS.

### Langside Library, Glasgow.

It is stated that the Glasgow Corporation, considering that the design placed first in this competition could not be executed for the stipulated sum of £5,500, have adopted the design placed second, which was that of Mr. George Simpson, Licentiate R.I.B.A., of Glasgow, who is to carry out the work.

### New Baths, Balham.

Mr. H. W. Wills, F.R.I.B.A., the assessor in this competition, has made the following awards:—1st, S. N. Cooke and W. N. Twist, Birmingham; 2nd, Page and Snell, London; 3rd, H. Burgess, London. The designs, 47 in number, will be exhibited at the Wandsworth Baths on February 10th and 11th.

### Prizes for Museum Drawings.

One prize of £10, and two of £5 each are offered by the London County Council for drawings of buildings or artistic objects in museums, to be made between Easter and the sending-in day, November 8th. The drawings are to be delivered at the Central School of Arts and Crafts, Southampton Row.

## LIST OF COMPETITIONS OPEN.

FEBRUARY 15.—HIGH SCHOOL MOTHERWELL.—Dalziel School Board invite designs for a new high school. Assessor, Dr. J. J. Burnet, A.R.S.A., F.R.I.B.A. Conditions may be obtained on or before February 15 from Mr. Thomas M. Young, Clerk to the School Board of Dalziel, Motherwell.

FEBRUARY 22.—TRAINING COLLEGE, GLASGOW.—Limited to six selected architects.

FEBRUARY 26.—DECORATIVE FIGURE COMPOSITIONS.—The Academy of Fine Arts, Bristol, invite competitive sketch designs for painted decorative figure compositions to fill four segmental lunettes under the dome. The selected artist to receive £500 for the work. Assessors, Messrs. Beresford Pite, W. R. Lethaby, and Gerald Moira. Sections to be seen at the office of the architect, Mr. S. S. Reay, F.R.I.B.A., 47, Milsom Street, Bath. Designs to be sent to Professor Beresford Pite, F.R.I.B.A., Royal College of Art, South Kensington, S.W.

MARCH 1.—CITY HALL, WINNIPEG.—Limited to British Architects in Canada. Assessor, Mr. Leonard Stokes, F.R.I.B.A.

MARCH 1.—ROYAL PALACE AND LAW COURTS, SOFIA.—Particulars of this competition are obtainable from the Commercial Intelligence Department, Board of Trade, Basinghall Street, E.C.

MARCH 31.—GARDEN SUBURB, IPSWICH.—Competitive designs are invited for laying out about 26 acres of land as a working-class suburb on the lines of a modified garden city. Premiums, 50, 30, and 20 guineas. Conditions and plan (10s. 6d., returnable) from Mr. Will Bantoft, Town Clerk, Town Hall, Ipswich.

APRIL 18.—SECONDARY SCHOOLS, READING.—Reading Education Committee in-



vite designs for Kendrick Boys' and Girls' Secondary Schools from architects within the borough. Premiums, 70 guineas and 30 guineas. Particulars, Education Office, Blagrave Street, Reading. Mr. Ernest Newton, A.R.A., F.R.I.B.A., is the assessor.

APRIL 29.—MUNICIPAL OFFICES, BARNET.—Barnet Urban District Council invite designs for new municipal offices, to be erected at a cost not exceeding £4,000. Premiums, £25, £15, and £10. Particulars from Mr. W. F. Wilkins, M.S.E., 40, High Street, Barnet. Designs to be delivered to Mr. H. W. Poole, Council Offices, 40, High Street, Barnet.

NO DATE.—KURSAAL, FOLKESTONE.—Cost not to exceed £29,000. Premiums, 100, 50, and 25 guineas; premiums of accepted design to merge in fees. Apply to Town Clerk, Folkestone.

## NEWS ITEMS.

### *Discussion on Building By-laws.*

At the annual meeting of the British Constitution Association to be held at 11, Tothill Street, Westminster, on Monday, February 17th, a discussion on Building By-laws will be opened by Mr. C. F. A. Voysey. Sir William Chance will occupy the chair.

### *Sir T. G. Jackson's Academy Lectures.*

The following two lectures are to be delivered by Sir T. G. Jackson, Bart., R.A., at the Royal Academy: Monday, February 24th, "Byzantine Architecture: The Churches of Constantinople and Salonica." Thursday, February 27th, "Italo-Byzantine and Italian Romanesque Architecture."

### *Appointment.*

Mr. F. R. Pearson, who for the last 20 years has been with Messrs. Armitage and Wolf (formerly Mr. G. Faulkner Armitage) architects, etc., of Altrincham, has been appointed as Building Inspector to the Hale (Cheshire) Urban District Council. The appointment is for a period of six months.

### *The Beaux Arts Committee.*

All accepted students for the atelier of the Beaux Arts Committee about to be opened at 16, Wells Mews, Wells Street, W., will be required to pay an entrance fee of one guinea and a monthly subscription of two guineas. This fee is exclusive of drawing instruments and materials, which each student will be expected to supply. For further particulars apply to Mr. Arthur Davis, 107, Inverness Terrace, Bayswater.

### *The Craftsmen of St. Paul's*

A lecture on "The Craftsmen of St. Paul's"—one of a series organised by the Carpenters' Company—was given last week at the Hall of the Guild in the City by Mr. J. M. W. Halley. With reference to the Cathedral, he pointed out that one thing that affected the strength and durability of the building was the fact that Wren had used much less Portland stone than was at one time supposed. In its place he had employed materials from Caen, from Headington and Burford (both in Oxfordshire), and from Kent; the stone from these localities being, of course, not so hard nor as durable as Portland stone.

### *Portinscale Bridge to be Saved.*

The Cumberland Highways Committee have decided to recommend to the county council, which meets this week, that the

old Portinscale Bridge should be saved by grouting, and that Sir Francis Fox should supervise the work. Two local gentlemen undertook to refund to the council the estimated sum for the work if, after three years' testing, the bridge proved to be insecure for the heaviest traffic. How far this influenced the Highways Committee is not known.

### *Additions to Ashton-in-Makerfield Parish Church.*

The contract has just been let for the addition of new chancel, organ chamber, and vestries at the parish church of Holy Trinity, Aston-in-Makerfield. The architects are Messrs. W. C. Ralph & Son, Wigan.

### *R.I.B.A. Notice to Licentiatees.*

The Council desire to call the attention of Licentiatees to the fact that under the Charter, and in accordance with the Declaration subscribed by them, the only affix they are entitled to use is "Licentiate R.I.B.A." and that the initial only of the word "Licentiate" or the abbreviation "Lic." is not permissible.

### *Three Sanatoria for Derbyshire.*

The Public Health Committee of the Derbyshire County Council have decided to erect three sanatoria for the treatment of consumptive patients under the National Health Insurance Act. One, for the north-eastern side of the county, will be built at Chesterfield; another, for the southern portion, at Ilkeston; and the third, for the west of the county, will be erected at Glossop. The committee have commissioned Mr. W. H. Ward, of the firm of Messrs. W. H. Ward and Son, architects, Birmingham, to design the buildings.

### *South Kensington School of Art Woodcarving.*

The King and Queen are lending a carved armoire to the exhibition of the works of past and present students of the South Kensington School of Art Woodcarving, which is to be held on the 6th, 7th, and 8th of February in the Galleries of the Royal Institute of British Architects. There will also be on view an interesting loan collection of old and modern carvings. The National Competition awards gained by the school will be distributed on Friday, February 7, at nine p.m., by C. S. Cobb, Esq., M.V.O., chairman of the Education Committee of the London County Council.

### *The Lighting of Factories and Workshops: Departmental Committee.*

The Home Secretary has appointed a Committee to inquire and report as to the conditions necessary for the adequate and suitable lighting (natural and artificial) of factories and workshops, having regard to the nature of the work carried on, the protection of the eyesight of the persons employed, and the various forms of illumination. The members of the Committee are: Dr. R. T. Glazebrook, C.B., F.R.S., director of the National Physical Laboratory (chairman); Mr. Leon Gaster, Professor Francis Gotch, D.Sc., F.R.S., Mr. J. Herbert Parsons, M.B., D.Sc., F.R.C.S., Mr. W. C. D. Whetham, F.R.S., and Sir Arthur Whitelegge, K.C.B., Chief Inspector of Factories. The secretaries of the Committee are: Mr. D. R. Wilson, one of His Majesty's inspectors of factories, and Mr. C. C. Paterson, M.I.M.E., A.M.I.C.E., of the National Physical Laboratory. Any communications on the subject of the inquiry may be addressed to Mr. D. R. Wilson at the Home Office.

## OBITUARY.

### *Mr. J. H. Eastwood.*

Mr. John Henry Eastwood, A.R.I.B.A., died at his residence in Cheniston Garden on January 24th, after a few days' illness. Mr. Eastwood was born near Leeds on October 15th, 1843. His principal professional work was as architect of St. Anne's Cathedral, Leeds, with the Cathedral House and schools. Sir Edward Clarke, K.C., brother-in-law of Mr. Eastwood, together with Lady Clarke, were among those present at the religious service preceding the funeral.

### *Mr. George Jennings.*

The death has occurred of Mr. George Jennings, a well-known builder in Newcastle, who was 62 years of age. Mr. Jennings was a native of Chester-le-Street and went to Newcastle 32 years ago.

## COMING EVENTS.

### Wednesday, February 5.

Guild of Architects' Assistants.—Mr. Cyril E. Power, A.R.I.B.A., on "Architectural Education in L.C.C. Technical Schools," Room 22, St. Bride Foundation, Bride Lane, Fleet Street E.C., at 7.30 p.m.

Royal Society of Arts.—Mr. Leon Gaster on "The Economic and Hygienic Value of Good Illumination," at 8 p.m.

Worshipful Company of Carpenters.—Mr. Walter H. Godfrey on "The Practical Value of Historical Study to Modern Craftsmanship," Carpenters Hall, at 7.45 p.m.

Edinburgh Architectural Association.—Dr. A. H. Millar, F.S.A. (Scot.), on "St. Mary's Tower, Dundee." Polytechnic, Regent Street, W.—Mr. Angus Walbrook on "Prepared Paints," 7.30.

### Thursday, February 6.

Camera Club.—Mr. Thomas E. Green, F.R.G.S., on "Siena, and Other Mediæval Cities of Tuscany," at 8.30 p.m.

### Friday, February 7.

Birmingham Architectural Association.—Mr. Banister F. Fletcher, F.R.I.B.A., on "Georgian Domestic Architecture."

Royal Sanitary Institute (Chadwick Public Lectures).—Mr. H. Percy Boulnois, M.Inst.C.E., on "Hygiene of the Home," 8.15.

### Saturday, February 8.

Architectural Association.—Third Spring Visit, to Houses in Smith Square, Westminster (E. L. Lutyens, architect), at 2.30 p.m.

### Monday, February 10.

Architectural Association.—Paper by Professor W. R. Lethaby, F.R.I.B.A. Surveyors' Institution.—Mr. William Woodward, F.R.I.B.A., on "Building By-laws," at 8 p.m.

Bristol Society of Architects.—Mr. G. H. Oatley, F.R.I.B.A., on "Reminiscences."

### Wednesday, February 12.

Edinburgh Architectural Association.—Mr. David T. Paterson on "Building Stone."

Manchester Society of Architects.—Paper by Mr. J. Alfred Gotch, F.S.A., F.R.I.B.A.

Polytechnic, Regent Street, W.—Mr. Angus Walbrook on "Leadless Paints," 7.30.

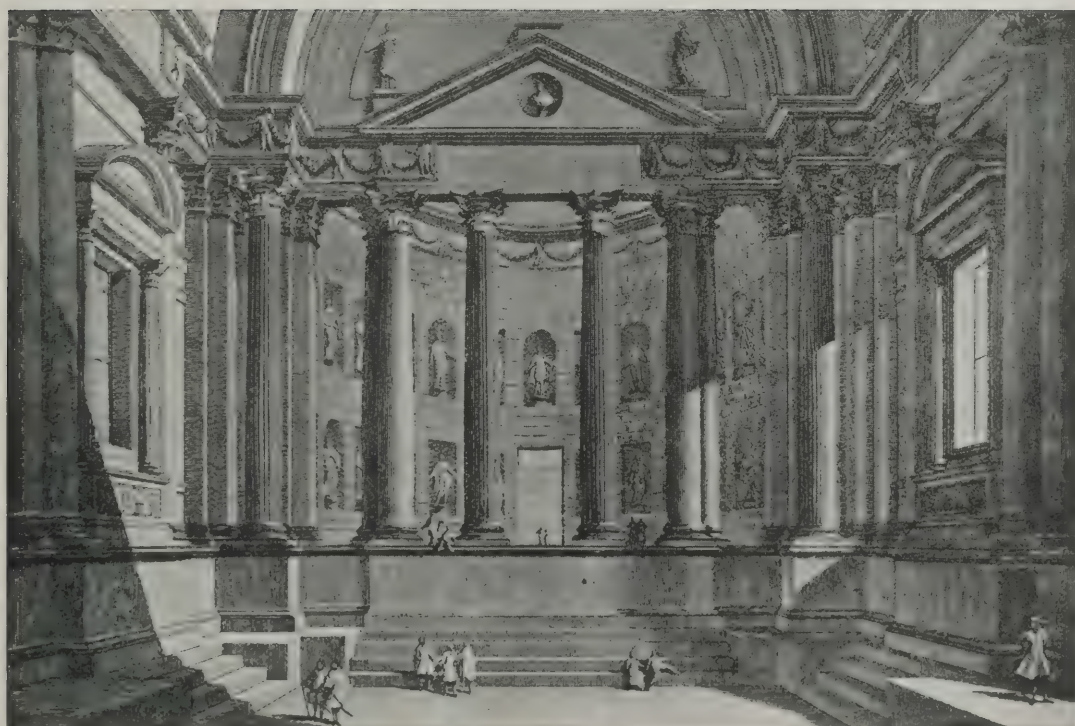


# THE ARCHITECTS' & BUILDERS' JOURNAL.

Wednesday, February 12, 1913.

Volume XXXVII. No. 944.

No. 20.



*(From Piranesi.)*



MEMORIAL TABLET TO ARCHBISHOP CRANMER, JESUS COLLEGE, CAMBRIDGE.

RICHARDSON AND GILL, ARCHITECTS. ALBERT BRUCE JOY, SCULPTOR.



# THE ARCHITECTS' & BUILDERS' JOURNAL.

FEBRUARY 12, 1913.

CAXTON HOUSE, WESTMINSTER.

VOLUME 37. No. 944.

## Tradition in English Architecture.

TRADITION is the child of nature; one of her chief manifestations; and while transcendental in those great periods of artistic culture which constitute the touchstone of modern style, it is nevertheless identified with the ideals of lesser and more obscure activities. Herein is to be seen the difference between the main issue embraced by the term "great architectural tradition" and local tradition; the former is constant, no matter how vast the remoteness of its activity; the latter relies for its very existence on contact with the principles evolved during the world's history.

The true progress of architecture lies not in the exploitation of surface differences, but in the clearer perception of causes. To the artist all fields are fertile and offer means of sustenance. There is an affinity in the produce, notwithstanding the variety.

To fasten on to any particular historical style—Hindoo, Saracenic, Chinese, French, or what you will—literally repeating its forms with slavish exactitude, is like transplanting an alien plant without warming its roots with native soil. For a brief space it struggles to reach the sun; like magic a forest of poisonous weeds surround the growth, obscuring its original beauty, and breathing death.

Closer investigation of the phases of architecture brings to light an amazing resemblance of genealogy. Local tradition has endowed individual groups with surface characteristics, but the underlying principles are eternal. After all, detail is purely a matter of opinion; the inherent qualities of composition alone count in the progress of evolution. From the creation of the dagobas of India and the temples of Siam it is a long cry to the erection of St. Paul's Cathedral, yet what a family likeness exists between such totally different structures. Local tradition is too precious to be disregarded; it is something crystallised and tangible. A people having moulded it to a certain stage, discriminative criticism will reveal its limitations; then those responsible for the pursuit of the ideal must return to the purer sources of inspiration in order to carry the edifice a stage further. Immediately local tradition is brought into contact with recognised achievements, there results a widening of outlook, together with an assimilation of intellectual thought. But the very complexity of modern conditions demands the retention of local tradition. The zealots in our midst clamouring for foreign domination, eager to place their broad backs 'neath the lash of alien taskmasters, ready to assume the servile badge of another country's mode of expression, are blind to the beautiful idioms of their own language. Possibly a race will be bred to raucously declaim Parisian slang, or trained to flourish their muddle-headed version of French design throughout the land. They will tear up well-shaped clothes because they have stood the test of time, and pass the old cloth through grinding looms to create mere shoddy.

In America the critics are rightly deploring the

awful example of New York, a city with sufficient local tradition to be extended, flaunting the laws of good taste clothed in a pseudo-Parisian gown.

To return to the present attitude of architects and artists in the United Kingdom, does it not appear that the licentious character of the vernacular architecture stands forth as the writing on the wall? At the close of the sixteenth century, when English architecture received added impetus by reason of contact with the humanist movement then spreading northwards from Italy, a definite course was entered upon which has survived practically to within our own time. This great development, not inaptly named Neo-Classic, because it was not of the Renaissance proper, but a wondrous aftermath ensuing from the parent brilliancy, portrayed the most brilliant period of English history. It announced the fusion of the Middle Ages with modern thought, it reflected the rise of commerce, it foreshadowed the enterprise of the engineer; in a word, it is the local and definite tradition which awaits to be cast into a new mould. The possibilities of such a development are enormous, its vitality is Herculean. With this latent local tradition can be fused the colour-brilliance of the Orient, the monumental qualities of the buildings of Thibet, the enterprise and logic of the Occident. Must we then continue blind to its appeal, possessed of devils and, like the animals of Gadara, rush headlong into the sea of French decadence?

To judge of the national architecture and of its existence, there cannot be a shadow of a doubt we must raise our eyes from its transitional moods to its lasting models; from the incoherent blaze of inconsequent revivals to the brilliancy of the constant fire. It is not our business to laud the English tradition above that of any other country, but to explain its existence and to extol its virtues. Is it possible that educated men still believe the fable that architecture in England flickered out in the year 1800? How many realise that even as late as 1840 the achievements of English architects were held in high esteem by their French and German contemporaries? And, what is of paramount importance, the modern tradition in America had its beginnings at the hands of those Englishmen who journeyed to the States a hundred years ago. Every architect, to be worthy of his profession, needs to be thoroughly conversant with tradition before he attempts to minister in the temple of architecture. He must reason with the clearness and perception of the most expert logician, he must consider detail with the fastidiousness of a Frenchman; add to this the imagination of a poetic temperament and the wisdom of the philosopher, and in such a one will be found the makings of an architect. It may be argued that tradition imposes a curb on originality—in other words, undue restraint in shaping the problems of to-day to accord with the forms of the past can only result in practised archæology. This is a popular misconception of the fundamental principles of design, which received clear definition at the hands of Sir Joshua Reynolds: "From the remains of the works of the



ancients the modern arts were revived, and it is by their means that they must be restored a second time," "A student unacquainted with the attempts of former adventurers is always apt to overrate his own abilities; to mistake the most trifling excursions for discoveries of moment, and every coast new to him for a new found country." "The productions of such minds are seldom distinguished by an air of originality."

Every new circumstance enables the designer to recast the well-tried symbols offered to him by the local tradition which surrounds him; true there are times when such symbols do not furnish a ready solution to the problem, then his knowledge of other ways and other means must aid him to a decision.

By the very force of overwhelming circumstances the architect is compelled to study the masterpieces of the past and to study them continually. He must study architecture and the kindred arts in the same mood and with the same humility and desire to excel which distinguished the artists of a bygone day. Moreover, he must regard the whole assembly of the old masters as dangerous competitors. By these means the only possible form of originality can ensue, existing tradition be enlarged and native architecture strengthened. Helotage under foreign taskmasters is an acknowledgement not only of weakness but of incapacity.

A. E. R.

#### The Small Suburban House.

AS will be seen from the note appended to a letter on page 170 of this issue, we propose to institute a competition for plans of a small suburban house. Full particulars will be given next week, but a few preliminary remarks are now appropriate. The house we have in view is intended for a large section of the middle class who, as in many other things, are called upon to bear a heavy part of the communal burden, yet have very little done for them. We have heard a great deal of housing for the working classes, and very properly so, for it is plain that the housing problem is at the root of many others—including that of consumption. But other people beside the "working classes" have claims for attention, and one of these is the claim for an improved plan of the small semi-detached house, for the occupation of members of the middle class with moderate incomes. Just as the public are forced to buy what the manufacturer chooses to set before them (the inversion of the case being, we believe, quite erroneous), so the middle-class citizen has to put up with what the speculating builder and the estate development company are pleased to offer. And the houses made familiar to us in this way are far, indeed, from what they might be. We are not now concerned with the exterior or the interior design and embellishment, but with the plan. With very few exceptions, what we may call the passage plan is the one adopted. This is based on the assumption of a mode of living which does not prevail and is not desired, it results in a disastrous reduction in the size of rooms, and it perpetuates a miserable arrangement which arose, presumably, in Victorian days. It is, then, in the hope of getting a radical alteration made in this plan of the small suburban house that we propose to hold our competition.

#### The New Government Buildings for Edinburgh.

THE decision that there shall be an open competition for the new Government buildings for Edinburgh extricates the First Commissioner of Works, not altogether ungracefully, from an absurd situation. In the circumstances we do not care to add anything to our former comments on the curious assumption upon which the First Commissioner originally intended to act—namely, that as a matter of course the design of so important a building could and should be prepared in the Office of Works. On the present occasion we much prefer to

congratulate the First Commissioner on having adopted the suggestion for an open competition, and more particularly on his having the courage to abandon an initial mistake. Our heartiest felicitations, however, are due to those Scottish members whose pertinacity in a good cause has met with such signal success; for they have not only carried their point—they have established a precedent, and perhaps a principle.

#### The Mall Approach.

SIR ASTON WEBB'S letter about the opening out of the Admiralty arch at Charing Cross makes very awkward reading for the London County Council, for it shows that in 1911 the opportunity for carrying out the much-needed alteration was passed by. Mr. George Drummond called on Sir Aston Webb in the summer of that year and made "a most generous offer to submit to an alteration to the end of Messrs. Drummond's bank and give up the land thus liberated free of cost, if the County Council would make the alteration and set back the buildings on the other side of the roadway." This offer was declined by a committee of the Council, and thus, as Sir Aston Webb says, a great opportunity was lost. London will not remain content with this mutilation of the scheme, and we expect that ultimately still further expense will have to be incurred in order to clear the necessary opening.

#### A Greek Abraham Lincoln.

FROM the Illinois Chapter of the American Institute of Architects we have received a copy of a protest against the form of the memorial to Abraham Lincoln which is proposed to be erected at Washington. The design, it appears, has already been approved by the National Commission of Fine Arts, and the protest is therefore being addressed to members of the House of Representatives as the highest court of appeal. Without having seen the design it is impossible for us to form an opinion as to its appropriateness, but as it is stated to bear a close resemblance to a Doric temple enshrining a bronze which represents Lincoln as a "Greek deity," it certainly would seem to have no relation historically with the great President, nor to typify the Americanism he stood for. This case serves to indicate that while it is good to go back to Greece as the fountain-head of architectural inspiration, rather than to seek a basis in the work of revivalists, we should act as citizens of a century whose civilisation is greater than Pericles ever dreamed of.

#### The Richmond Bridge Impasse.

WE have already mentioned in these columns how the beautiful eighteenth-century bridge across the Thames at Richmond has been brought to a dangerous condition through the increasing motor traffic engendered by the growth of London. Local interest in the matter has been acute, culminating in meetings of Richmond and Twickenham townspeople, at which resolutions have been passed calling on the Middlesex and Surrey County Councils to take immediate action. On behalf of the latter it is now stated that nothing can be done at present—a reply which is certainly very unsatisfactory. But it seems to us that the responsibility for the present impasse partly rests with the Richmond and Twickenham townspeople themselves for adopting resolutions which did not indicate exactly what they wanted done. The only proper claim, in our opinion, is for a new bridge at the foot of the hill in line with the main thoroughfare from London. If the resolutions had been definite in this respect we think the County Councils would have found it difficult to push the matter aside in the way they have done.



## THE EDUCATION OF AN ARCHITECT.\*

BY PROFESSOR REGINALD BLOMFIELD, A.R.A.

ON the last occasion when I had the honour of giving an address in these rooms I ended on that subject of perennial interest to all of us the high calling of Architecture, the fascination of that art, its claims on our enthusiasm and unremitting study. But on the other hand it is not an art to be undertaken lightly, and I am going to offer a few suggestions on the spirit in which you should approach the work of your life. You may recollect the catalogue of good qualities which the older writers, borrowing from Vitruvius, used to insist upon as necessary to the architect. You may recall De l'Orme's fancy portrait of the good architect and the bad—the good architect a compendium of all the virtues, the bad a villain and a fool; pleasing but irrelevant fancies of no material bearing on the training of an architect, except in so far as they point to a high ideal of the art. But, gentlemen, I take it for granted that though you are taking up architecture as your livelihood, you will look upon the calling of an architect as something higher and nobler than a mere money-making business. I take it also that you have that enthusiasm which is the privilege and prerogative of students in all ages. Without it the labour of study becomes mere drudgery, sterile, and unprofitable; with it you can face cheerfully the severe gymnastic of your training, for I need not conceal from you that to arrive at any mastery of architecture your training must be serious and prolonged. A mere smattering of knowledge is useless. You have to attain a technique that makes greater demands on the intellect than that of any other art. The standard of attainment steadily rises, and the work of the architect tends to become more and more specialised. The days are long past when some bold and skilful designer was both architect and engineer; and though you must in your training devote yourself to learning all about architecture that you can, you will probably find as you go on that the force of circumstances will tend to drive you into specialising in one direction or another.

That, however, you may well leave to the future. Your business at present is to fashion and complete your armour, to acquire a practical knowledge of the resources of your art, and the skill of eye and hand to interpret the visions of your imagination. For the

architect, alone among artists, is brought up against the rude test of facts, and he must be full of resource and full of knowledge, with more than a nodding acquaintance with those technical sciences which materially affect the design and disposition of buildings. I need not dwell further upon the extent of the studies that you are bound to undertake; perhaps you are already painfully aware of it. Rather, I would call your attention to certain pitfalls that lie in wait for the impetuous and the unwary. Some of us, looking back on our own student days, can recollect wasted

effort, because for want of guidance we sometimes wandered off into a cul-de-sac, which might have been avoided had the object of training been clearly realised. The curriculum was overloaded and bewildering, and too often degenerated into simple cram. Students of this generation are more fortunate, because the ground has been cleared for them in this regard. In recent years the whole object of the Institute, in its educational reforms, has been to make the training of architects more intelligent and intelligible, and to direct the student to the understanding of the subject that he studies, rather than to the accumulation of scraps of knowledge.

In the first place, I would urge all students to make their ground good as far as it goes. In construction you are not merely to learn by heart the formulæ for the next examination; what is vital is to understand the why and the wherefore, to realise that the stresses and strains with which you wrestle, though expressed in technical

terms, are not mere abstractions, but the result of the interaction of physical forces and the physical properties of materials. You should use your imagination as well as your intellect, and clothe the dreary figures with concrete instances. Though you should not rely on it without detailed verification, you should cultivate an instinct for construction—an extra sense, as it were, of what is sound and unsound in building, such as builders of the old school used often to possess in a very high degree. That instinct was the result of experience and experiment in building, of close observation of facts, of sub-conscious processes of thought, not less valuable because never set out in precise terms. You must recollect that an architect, in superintending his work, depends on his eye; and a quick and well-trained eye will detect defects of workmanship and construction at once that would

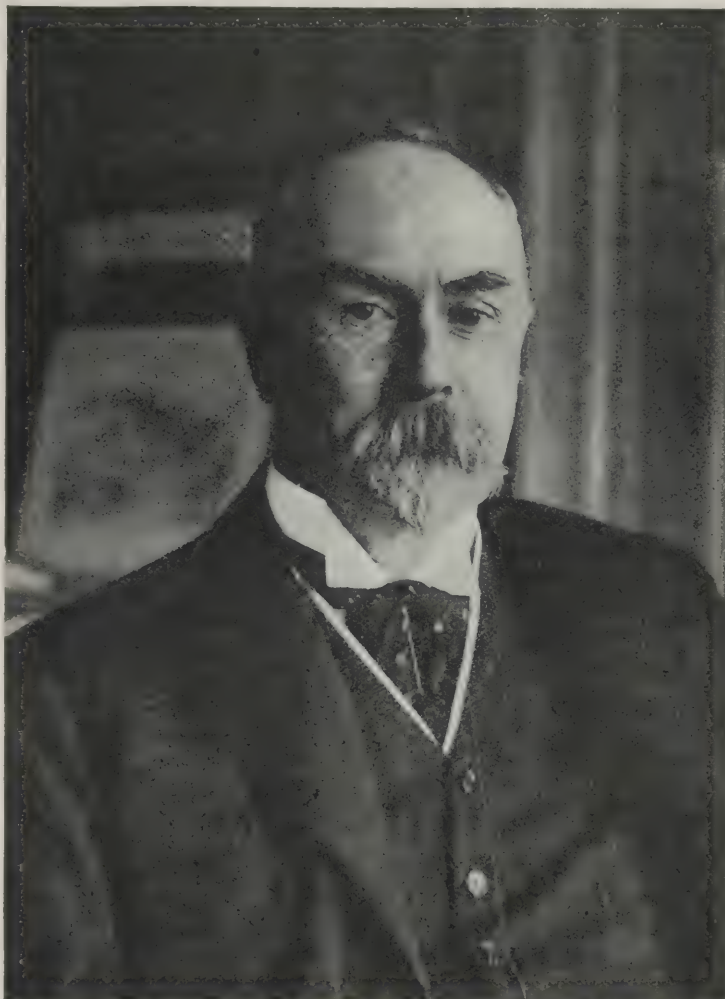


Photo: L.N.A.

PROFESSOR REGINALD BLOMFIELD, A.R.A.,

*Nominated for the Royal Gold Medal, 1913.*

\* An address to R.I.B.A. Students, given at the meeting held on February 3rd.



be passed over by a loose observer, and it is essential that you should cultivate, from the first, quickness and accuracy of observation and a sound critical judgment of the quality of work. The architect should be, like Ulysses, "*πολύ-ροπος, πολέμητις*," full of experience and resource, for he it is who is responsible, and, if difficulties occur, he is the man who has to find the way out.

In your studies in history I would offer the same advice. Beware of the text-book, with its categories, its schedules, its quite hypothetical classifications. You want to get at the facts; but you want them not as a collection of dried anatomical specimens, but in order to trace the relation of fact to fact, to understand their origin and development, to place them in touch with the large movements of civilisation; and if in your reading you have this constantly in view, you will in time penetrate through the screen of details to the broad principles that dominate them. Architecture will present itself to you as a living art of immemorial age and descent, and also of boundless possibilities in the future. Your readings in history will supplement your practical study of the art, because they will enable you to realise, however imperfectly, that behind the visible expression of architecture great forces have been and still are moving, and you will learn to think in terms of architecture instead of repeating mere parrot phrases of design. There have been produced in recent times, and by various writers, very good books on architecture, but there has also sprung into existence, not only in this country, but on the Continent, a violent eruption of books of architecture which are not books, but compilations of letterpress barely sufficient to float interminable collections of photographs, mere ha'porths of bread to an intolerable deal of sack. I incline to think that these industrious efforts have retarded the advance of architecture, because they have concentrated attention on its details to the neglect of its organic structure, and have produced in the public a passion for archæological sentiment and revivalism which is quite remote from any real appreciation of the art. My advice to you is not to rely on photographs, except as reminders of work you have seen and studied; you will learn more by the notes and measurements of actual work that you take yourself than by a whole roomful of photographs. I am glad to say that the excellent measured drawings submitted year after year for the Pugin Studentship prove that some of you are fully alive to this. Those who have been to all this pain and trouble will reap their reward in later life.

A word on literary style. My colleagues will pardon me, I hope, if I suggest that enthusiasm for the practice of our art has sometimes led to the neglect of literary studies. Now, I am not urging you to add to your burdens the systematic study of literary style. To some extent that should have been done before you entered your technical training, but it will not do for you to ignore it completely. Occasions will arise in which it will be necessary to express yourself in clear, straightforward and logical English. Failure to do so is due to two causes, confused thinking, and a certain unwillingness or inability to say a plain thing in a plain way. As a matter of self-training, you should learn to think your ideas through, and study in your leisure the masters of English prose, and I think you will find that the finest prose is like the finest architecture in its rhythm and restraint, and in its austere simplicity of statement.

#### *Drawing and Sketching.*

Drawing as an instrument of thought and analysis is all-important. Some students draw too little, and others perhaps too much. The important thing is to be clear why you draw at all. (I am talking, of course, of the training of students in architecture, and not at this moment of drawing in general.) Now, the object with which an architect, in his actual practice,

makes sketches and notes of a building is to carry away an accurate record of the facts of that building. He will put down all that is relevant, partly in sketches and measurements, partly, maybe, in writing; but he will not waste his time on anything that has no bearing on the subject. Your attitude when you are making drawings of buildings for the purposes of your training should be the same. You should make it your business to master the meaning, the purpose, the construction of the building, or detail of a building that you are studying. Sketches, however rough, provided that they are accurate, are of more value to you than the most slashing black-and-white or the most elegant water-colour. I have noted sometimes, in students' drawings, an evident anxiety to make the drawing itself attractive, and a fondness for details because they are picturesque and sketchable; but the architectural student should recollect that he is not out for the purposes of the painter. He may take his holiday and indulge himself in a landscape or the like, but the object of his labour should be the critical analysis of the building he is studying. Incidentally he will acquire in this way a quickness and accuracy in seizing and presenting architectural forms which will be invaluable to him in practice; and in all drawing, whether it be of these technical studies or the drawing that is common ground both to painter and architect, the object should be to grasp the essential characteristics of form and present them clearly and faithfully. I recollect once sketching a certain town-hall in company with a clever but somewhat impetuous draughtsman. When I was still labouring at the proportions of my building, my friend had completed a very taking sketch of the whole; unfortunately it was one bay short of the proper number.

#### *The Power of Design.*

And now we come to what is, after all, the end and object of your training, the development of your power of design: for I include in that your knowledge of construction and applied science, your knowledge of the architecture of the past, your power of draughtsmanship, as all of them subsidiary to the special function of the architect—design. And here I would raise a question for the consideration of our schools, and that is, how far it is desirable, or even possible, to train students in a variety of styles. The training of our students a few years back proceeded on the assumption that it was both. It was held that an architect should have a smattering of all the known styles, in order that, when called upon to do so in practice, he could turn his hand to any. Text-books of styles were a burden to us; Gothic architecture was divided up into sacrosanct periods, which now appear in the guide-books in all the degraded abbreviations of "Dec." and "Perp."; and as for Neo-Classicism, the result was what was genially described as "Free Renaissance," but was, in fact, an unlicensed orgy of sketch-book details, ill-understood and misapplied. I do not believe this is the way to train a student to design at all, because it disregards the first high principle of architecture—and, indeed, of all art—that Art is the expression of personal emotion under conditions; and that emotion which expresses itself indifferently in half a dozen different manners must be a very thin affair. It does not convince the designer, and if it does not convince him it is not likely to convince anybody else. It cannot too often and too strongly be insisted on that Art is not a go-as-you-please affair, nor is it the work of anybody and everybody. It must be founded on strong individual preferences, definite idiosyncrasies, and a genuine aptitude for this particular mode of expression. However, this is more a matter for the masters, and to you I will only put it that it is better to know one period or manner well than half a dozen badly.

What I would suggest to you students is that in design you must watch yourselves with such critical

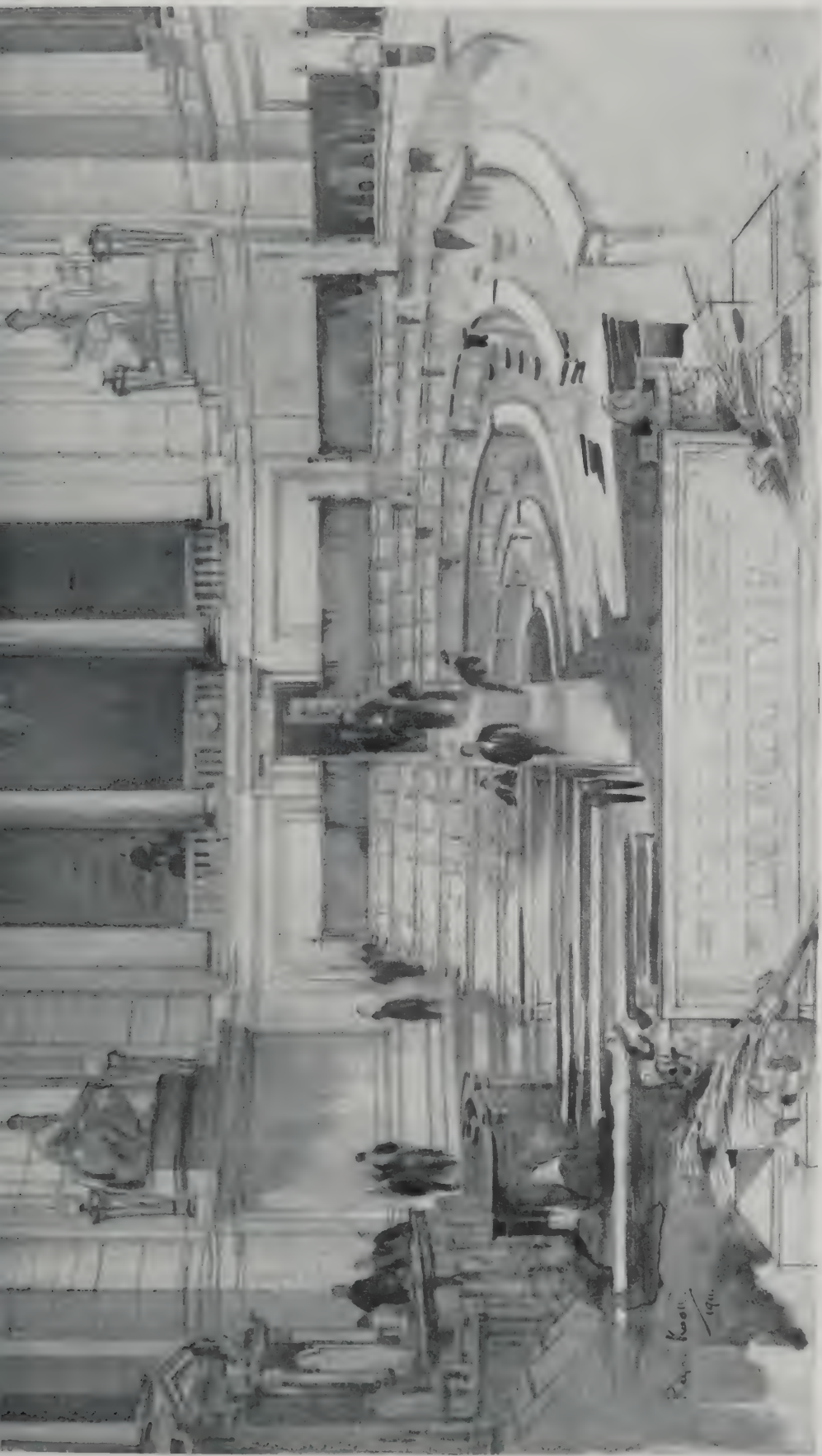


LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS

*Supplement to THE ARCHITECTS' AND BUILDERS' JOURNAL, Wednesday, February 12th, 1913.*







THE COUNCIL CHAMBER IN THE LONDON COUNTY HALL. RALPH KNOTT, ARCHITECT.

UNIVERSITY OF ILLINOIS.



detachment as you can compass; try to discover, so far as you are able, which way your own idiosyncrasy lies, how you can most readily and sincerely express, in terms of architecture, your conception of the problems before you. You will find, it may be, that certain forms of Neo-Classic are more intelligible to you than other manners. If that is so, and subject to certain cautions which I shall offer you, you should study not only that particular manner itself, but all round it, so that you may learn its place in architecture, how it arose, what are its resources, what, in so far as you can reach to it, is its informing spirit.

#### *Originality in Architecture.*

The caution that I would offer you is not to be in a violent hurry to be original. Architecture is much too old and great an art to lend itself readily to originality. It is fenced in by conditions and limitations which you are bound to observe; and the originality you should seek for is not that of the inventor of new and unheard-of shapes and forms such as are exhibited by the Cubists and the acrobats of Art Nouveau, nor is it to be sought in brilliant caricatures of well-known features, which arrest the eye, it is true, but pay the penalty by going out of fashion in due course. The originality you should aim at is that of the great masters of the past who used the forms and phrases that they found to hand, but applied them with a richness of invention and resource that doubled their possibilities. You should found yourself solidly on the best traditions of the past, whatever bold flights of invention you may risk in later years. In your student days your object must be to master thoroughly your technique, in order that the ventures of after-life may not fail for want of the knowledge of the facts and resources of architecture. I would urge you also not to study the fashion of the day too closely. Your object should not be immediate success and the quickest road to it. It may be that you will be driven to bow the knee in the House of Rimmon, but the least you can do is to nurse the faith that is in you, and endeavour to acquire a standard of judgment of your own. Your aims and ideals of architecture should be far beyond the narrow area of fashion, and there is only one road to that commanding position, and that is the patient and persistent study of the masterpieces of the art, and the firm conviction that architecture is an art to be taken seriously—not merely a business of which the sole object and criterion is immediate success.

I come back, then, to where I started—that the pursuit of architecture is not to be lightly undertaken. But I now add that those who take up the Art in the right spirit will have their reward, I hope, in plentiful opportunities for the exercise of their skill; anyhow, in the enjoyment of one of the finest of the Arts, and the Art most intimately allied with the history of the human race.

#### WORKING DRAWINGS BY WELL-KNOWN ARCHITECTS.

AS the sixteenth example in this series we publish on pages 176-177 a half-inch detail of the lower part of the west wing of the London Homœopathic Hospital in Great Ormond Street, the architect of which is Mr. Edwin T. Hall, F.R.I.B.A. The new wing has a frontage of 86 ft. 6 in. to Queen Square, and is seven storeys in height. It contains an extension of the out-patients' department, new consulting- and dressing-rooms, operating theatre, surgical dressing-rooms, boardroom and offices, three large wards with day and other rooms, ten private wards, and several isolation wards, etc., with a second staircase at the north end. In addition to the new wing, extensive alterations were made to the old part and to the staff home in order to bring them up to present-day

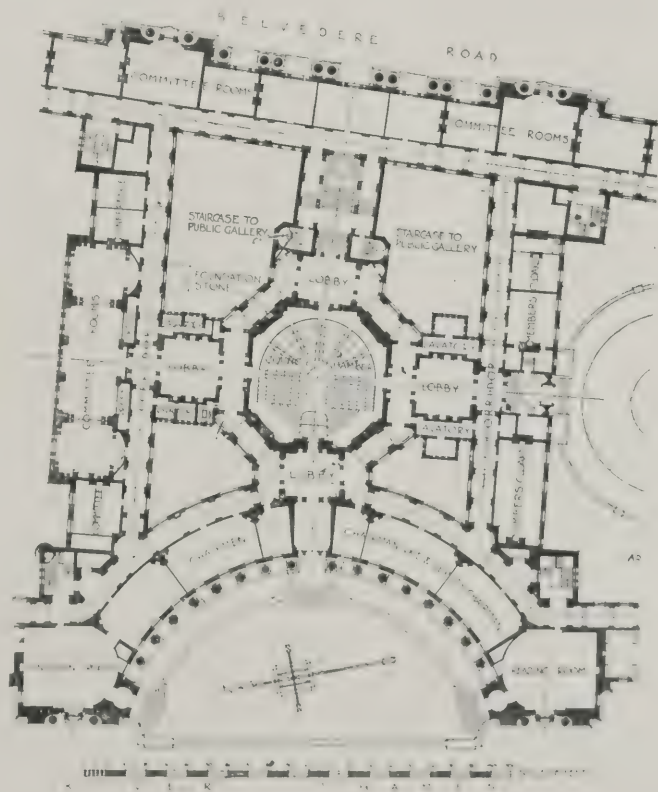
requirements. The external facing is of Portland stone. There are balconies on the western or Queen Square front to all the large wards, enabling patients to sit in the open air, enjoying a good prospect and being sheltered from winds. The contractors for the extension were Messrs. Holliday and Greenwood, Ltd.

#### R.I.B.A. PROBLEMS IN DESIGN.

WE reproduce this week, on page 173, a design for a colonnaded screen by Mr. E. Musmann, B.A., of the School of Architecture at University College, London, this design being one of those for Subject VI. (a) recently approved by the Board of Architectural Education. The conditions stated that the screen was to be 100 ft. in length, joining two wings of a public building 60 ft. in height; with two carriage entrances through it. Shaded drawings were required to  $\frac{1}{4}$  in. scale with 1 in. scale details.

#### OUR PLATE.

WE reproduce as the Centre Plate in this issue Mr. Alick Horsnell's fine perspective drawing of the Council Chamber in the new London County Hall, now in course of erection from the designs of Mr. Ralph Knott. This drawing was exhibited at last year's Academy. Marble will be used both for the columns and for the lining of the walls, and the seats and fittings will be of oak. A feature



of the interior will be four groups of sculpture symbolical of the work of the Council, representing Progress, Prudence, Education, and Guardianship. A plan showing the arrangement of the Chamber and its relation to the rest of the building is reproduced on this page. It is estimated that section A of the new County Hall will be completed by April, 1916, section B by March, 1916, and section C by June, 1915. The cost of the whole scheme cannot be ascertained until all the quantities are taken out.



## HERE AND THERE.

FROM the days when it was our task to copy those oppressively perfect maxims in copper-plate writing, we have had the worth of knowledge solemnly drummed into our ears, and we still accept it, unheeding of the Hebrew prophet who tells us out of antiquity that all is vanity and vexation of spirit. But let us be frank. We are not burningly anxious to acquire all knowledge, and the classic does not always interest us. I, for one, can read Shakespeare with genuine pleasure, but not Homer; be held by Tolstoy's "Resurrection," but turn wearily the pages of "Paradise Lost." The orthodox will deplore such a confession, and see in it but another proof of the degeneracy of modern thought. The fact is, however, that we are too prone to adopt the accepted view, and do not display enough courage in professing our individual likes and dislikes, in architecture as in all else. As a leader-writer in the *Times* says: "We talk about bad taste and good taste; we should rather make a distinction between real taste and sham. For bad taste is all unreal, and prevails among us not so much because of any natural perversity as because we do not know, and will not make an effort to discover, what we really like and dislike. Good art of all kinds is produced in answer to a definite demand made by people who know what they want and are determined to have it. Bad art is produced for a public that does not know what it wants and buys what it supposes other people will like. The great mass of our commercial imitations of art are the result of a blind effort to please a non-existent taste. They are made by people who have no pleasure in making them, and are bought by people who do not enjoy them when made." There is a great truth enshrined here, and if only it were generally acted up to, a most beneficent revolution would be effected.

Pursuing the subject a little further, one might say that a more genuine discrimination in architectural knowledge and taste would save us from nine-tenths of the afflictions that now beset us. And, as related to this, I have often felt what a blessing it would be if we could have a small number of standard volumes giving us all that was essential to know about the history of architecture and decoration: for the chief concern of an architect should be, not to possess erudite knowledge, nor to display a fine critical faculty in speech or writing, but to have ability to produce good buildings. This is the essential required of him, and his training should have that end solely in view. He needs of course to know something of the whole course of architecture, but the periods which are of no practical use to him call for a more drastic treatment than they receive at present.

Architecture, to me, is a far more practical matter than it is generally credited to be. Just as we thrust the poet on a pedestal, so we are for ever pushing architecture into a realm of æsthetics. But a building has primarily to be well planned, and equally well constructed, and its form and embellishment are matters of tangible design—matters of proportion, fitness, and adaptation to use. Æsthetic questions may be put aside completely, for they lead but into the slough.

\* \* \* \*

The ability to design, referred to in the foregoing paragraph, is largely co-related to a dogmatic declaration of choice. An architect may think that Georgian is the beau-ideal, or eighteenth-century French architecture, or modern American work, or Neo-Grec, or even that curious but not wholly bad mixture which

is at present the vogue in Germany. But if he is to do anything worth doing he will have to make a definite choice; in other words, he must specialise in a style, which it will take him all his time to master. To imagine that one day he can produce an admirable house of Georgian type, and the next a Neo-Grec screen, and the third day a Gothic church design, is to assume a resource of invention which does not exist. It becomes, then, a case of one man one style. After all, was that not the condition of the Greek, the Roman, and the thirteenth-century Englishman? Is it likely that Ictinus gave a thought to the details of Egyptian and Persian architecture, or that the builders of Canterbury knew anything of the ruins of Rome? The fact is, of course, tradition was their fund of knowledge, and they had one manner and one only. And, when all is considered, a "manner" is a thing to be sought after; it is evidence of coherence, and the expression of individuality, and if every building an architect produces is stamped with the same general characteristics, that is the more to his credit. In painting, as we know, there are "pot-boilers," and the cows of Sidney Cooper may become as uninspiring as the skies and muddy tracks in Leader's pictures: but an architect with a manner, "grand" or otherwise, need not fall under such criticism. Looking around us to-day, there is ample proof of this. We may find it easy to recognise a "Lutyens" house or a building by Messrs. Lanchester and Rickards: the individual impress is there: yet the diversity between "Temple Dinsley" and "Marsh Court," between the Wesleyan Hall and the Third Church of Christ Scientist, proclaims at once the variety in treatment which gives to each and all a fresh interest.

\* \* \* \*

It was Barrie who described Andrew Lang and R. L. Stevenson as swashbucklers who were always swashing on their bucklers, and it would seem that a similar spirit animates the young lions who are responsible for "The Vista"—a student organ, I believe, of the Glasgow Technical College. They certainly lay about them right lustily, and if there is a lack of finesse, the bout is always a merry one. The latest copy of this mysterious little paper has just come into my hands; and in it I find a lively epitome of Norman Shaw. Shaw, we are told, arrived with Nesfield in the nick of time. "Both were young, almost infernally clever, brilliant draughtsmen, and absolutely without the architectural scruples of such types as Chambers or Pugin. They adorned their works with a picturesqueness which appealed to the man-in-the-street's just acquired taste for nature and the country cottage; and they indulged in Dutch gables, broken pediments, eruptive keystones, and other easily copied and rather vulgar features vastly alluring to young architects brought up on too strict a diet of 'true principles' and 'Early English' details. Then, by a really sublime stroke of genius, their Teutonic medley was christened 'The Queen Anne Style'—in honour to a lady whose period was receiving a good deal of notice, thanks to Thackeray—and success was assured. The ordinary architect followed Shaw (Nesfield—who was perhaps the better architect—having died), and, by copying without inspiration, produced that crop of Shavian weeds which has sprung up in every field of British architecture." This estimate is not altogether just to a man who did some splendid pioneer work and whose personality was as kindly as his gifts were brilliant, but it embodies nevertheless certain truths which, without bitterness, may well be stated.

UBIQUE.



## A SHORT CRITICAL HISTORY OF ARCHITECTURE.\*

"THE word 'critical' is introduced of set purpose, as an expression of the spirit in which the reader is invited to consider the monuments of ancient architecture; not as objects for blind admiration, but as examples from which lessons may be learned both as to merits and defects in architectural design. Architects and writers on architecture are too prone to regard everything that is old as admirable—a most illogical attitude of mind. There is no reason why a building, because it is 1,500 or 2,000 years old, should not be criticised as to its architectural treatment as freely as if it were built last year; and it is from the consideration of ancient architectural monuments in this spirit that some of the most important lessons are to be learned, which architectural history can afford."

So the author enunciates his policy as an historian of architecture; and it is only fair to say that at no point does he fail to carry it into effect. He is consistently judicial throughout his task. He gives us something of an unfamiliar study of familiar ground. In doing so it is inevitable that he should produce a book with whose contents no reader will feel himself in complete agreement, and with which many will wholly disagree. But that is its virtue. There is no merit in assuming the rôle of critic only to venture opinions sufficiently indefinite to be accepted by all. Mr. Statham has avoided that mistake, and has stated his convictions with precision and confidence.

At the outset he adopts a system, in the arrangement of his material, that permits of proper importance being given to one of the fixed principles of architectural development—the principle of continuity of tradition. Instead of a series of separate sections dealing individually with Egyptian, Assyrian, and Mycenaean styles, we have one large chapter wherein all are grouped together under the title "Architecture Before the Great Greek Period." In the case of a professedly condensed history, the advantages of this plan are obvious. At a blow all manner of imaginary barriers are swept away. The reader realises that between Egyptian and Assyrian architecture there was no impassable gulf. In constructive forms and in decorative motives, inter-active influences become apparent, and tradition is revealed as a persistent, indestructible factor, cutting through "periods" and across continents. To this end the book is divided into seven chapters, of which the first is headed as already described, and the last "From the Renaissance to Modern Times." Certain of the sections seem to us to be disproportionately long and others too short. That point, however, need not be laboured. If Mr. Statham's work did no more than explode some of the false values underlying the old stylistic categories its existence would be justified.

But it has more than that to recommend it—and this we may affirm without in any way abandoning our inclination to quarrel with various of the author's tenets. There is no "Nature" cant in Mr. Statham's philosophy of architecture, no sentimental bleating about the inspiration of mountain, cave, and tree. The architect is not invoked to repair to the hills, "there to study what Nature understands by a buttress and what by a dome." But in a passage of much good sense he observes that architecture, as distinct from painting and sculpture, lacks any admixture of naturalism in its highest manifestations; its appeal is abstract and intellectual. "Its forms are referable to no standard in outward forms of nature; they are referable only to our mental judgment, by which they stand or fall. They represent the greatest and most important

attempt of mankind to make its own creations, independent of any image or likeness afforded by visible nature."

In another respect also this condensed history is admirable, namely, in the wealth of its illustrations. Photographs or line drawings, sometimes several of both, are introduced on almost every page, and as far as possible their position is in immediate relation to text-references, thus avoiding that ceaseless turning of pages which is the bane of artistic publications dealing with concrete examples. The quality of these illustrations, approximately six hundred in number, is, with one or two exceptions, excellent. The best occur in the "Renaissance and Modern" section, and include photographs of many important buildings usually only given in exhaustive works. All are accompanied by plans and English and metric scales.

To preserve the sense of an historical background (which the fusion of periods resulting from Mr. Statham's handling of the subject might be expected to endanger), a chronological chart is appended to the end of each chapter. In it the dates of the principal buildings in different countries are presented in tabular form, together with those of contemporary national events of importance.

As everyone must be who attempts to give, in concentrated form, an account of the history of architecture, the author is conscious of the vastness of the field he has attempted to cover, and of a fundamental disability involved in such labour. It is impossible to verify more than an insignificant portion of the data to hand. Neither statements of fact nor restorations of buildings can in nineteen cases out of twenty be satisfactorily substantiated or disproved. Theories, ingenious but unsupported by evidence, in less than a generation, acquire the certainty of incontestable records; and conjectural reconstructions, in which there is more of imagination than of archæology, are canonised on the instant of their appearance. Therefore Mr. Statham's caution, not in matters of opinion but of evidence, is a final recommendation to a book sufficiently individual in outlook to interest every student of architecture.

He writes not only with the knowledge and responsibility of a qualified architect, but with the dexterity of an accomplished journalist and man of letters, knowing well what to say and how to say it, and the result is a really excellent "short critical history."

L. B. B.

## MODERN SMALL HOUSES.

"THE Grove," Mill Hill (page 178), in which the Governors of Mill Hill School provide accommodation for three masters, was adapted from a group of old cottages by Mr. Stanley Hamp, A.R.I.B.A., of Messrs. Colcutt and Hamp, of London, W.C. The former accommodation was, of course, very meagre, and in order to obtain the requisite headroom it was necessary to underpin practically all the walls and to excavate the site in some parts to a depth of 5 or 6 ft. New footings were thus provided, with proper damp-courses and new floors throughout. The old roof and weatherboarding were retained after being carefully overhauled. The windows and fireplaces throughout are new, the old work having been cut away and made good as required. Some old wainscoting with which one room was lined has also been retained. The accommodation now provides a bedroom and a sitting-room for each master, with a common dining-room and spare bedroom, together with w.c., bath and lavatory, the housekeeper's apartments being at one end of the building. The views from the extensive grounds are very fine, and the large trees and beautiful garden give a pleasing seclusion to the whole place.

\* "A Short Critical History of Architecture." By H. Heathcote Statham. London: B. T. Batsford, 94, High Holborn. 1cs. net.



## CORRESPONDENCE.

*The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents.*

*Correspondents are asked to be brief and to write on one side only of the paper.*

*The Planning of Small Houses.*

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—Referring to the remarks on the above under "Here and There" in your issue for January 29th, may I suggest that it would be of great interest if you were to publish some plans embodying the suggestions made by "Ubique"?

Southsea.

E. H. WARD.

[We think that this is a subject of very great interest, and we propose, therefore, to institute a competition for designs. Full particulars will be given next week.—EDS. A. AND B.J.]

*District Surveyors' Fees.*

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—Your remarks on district surveyors' fees suggest that these gentlemen have but to charge what they are entitled to in order to rival Croesus. I will instance a large block of offices in which I am interested, and where minor alterations are necessary repeatedly in order to suit the convenience of tenants. The district surveyor has of course to be notified of each small alteration, and sends in his account for the full amount payable each time, with a charitable intimation that he will accept £2 2s. or £3 3s., which we have to pay gratefully. I find that his fees during the last eight years would have amounted to nearly £1,100 on this one building had he insisted on his legal fees under the Building Acts. I cannot, however, follow your argument that such fees should be paid by the general public, as those who build do it presumably for their own profit, and not for the good of the public at large, but I certainly think the scale of fees, particularly as regards alterations, should be modified.

London, E.C.

A. E. D.

[The generosity of this particular district surveyor is a tribute to the absurdity of the scale of fees. The suggestion that because "those who build do it presumably for their own profit" they ought therefore to be penalised does not seem to have much to recommend it. We prefer to regard the inspection of building operations as a public service performed in the public interest, and therefore to be paid for out of the public funds.—EDS. A. AND B.J.]

*Mr. Wells's Presidential Address.*

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—Seeing that, as the result of my letter, Mr. Waldram now admits the possibility of the truth of Mr. Wells's statement that in certain ultimate loading tests on reinforced concrete beams the lever-arm was increased, my purpose is fulfilled. As, however, Mr. Waldram raises some further questions of fact, I feel compelled once more to ask you to spare me a little of your valuable space.

In the first place, Mr. Waldram seeks to make out that the suggestion was that the lever-arm was materially increased by age, whereas Mr. Wells's words, as quoted by me, were—"due to the rich concrete." Perhaps Mr. Waldram will now admit the possibility that the richness might reduce the modular ratio from 15 to 5, even at working stresses. This would mean, as he says, a modulus for the concrete of 6,000,000, which I am not accustomed to reckon as increasing 2,000,000 "by 300 per cent.": otherwise

Mr. Waldram might reasonably have objected if I had called 6 per cent. increase in lever-arm 106 per cent.

Some years ago, I remember, there was considerable dispute over Lord Kelvin's remark as to "a fortuitous concourse of atoms." I will not assert, therefore, that Mr. Waldram is illogical, though I imagine that what he meant was illogical when he said that the suggestion of increase in lever-arm had "a small fortuitous element of accuracy, because the stiffness also increases with the strength," when immediately after he says, "Although strength and stiffness have little relation to each other." Surely if they have any relation at all the element of accuracy is not "fortuitous."

I merely chose the modular ratio values of 5 and 15 for the sake of illustration, as fitting either the stage of loading when working stresses are not exceeded or a stage after the elastic limit of the steel is exceeded when the modulus of the steel no longer continues "practically constant at 30,000,000." Mr. Waldram might think over this, and then perhaps he will understand why the increase in lever-arm after the elastic limit of the steel has been passed is not, as he asserts, "of course, an entirely different phenomenon," and why in some reinforced beams it is not "common. . . . to concretes of all ages and strengths."

In my experiments I have not attempted to determine the elastic modulus of concrete "in the presence of reinforcement," nor am I aware that any of Mr. Waldram's "engineering scientists" have done so either. I will not attempt to dogmatise about the way in which the modulus varies with the amount of water used in making the concrete, but I will say to Mr. Waldram that I have got larger values than 6,000,000 as the initial modulus of concrete mixed with a small quantity of water.

The "engineering scientists" are on my side as regards the initial modulus being increased by richness and age, as Mr. Waldram will find if he refers to tests by Professor Bach, Messrs. Richard L. Humphrey, and Louis H. Losse (U.S. Bureau of Standards), Professor Turneure, Professor Woolson, Mr. G. A. Kimball (Watertown Arsenal), and others. Nor is it exact that "the ratio of 15 has been adopted in practically every code of regulations all over the world." The Prussian Government only adopts 15 unless definitely determined to be different, the French Government adopts 8 to 15, the Italian Ministry of Public Works 10, and the New York Municipality 12. The American Joint Committee is proposing to reduce the value with increasing richness of concrete. But, after all, these values were mostly determined as a result of tests made a few years ago on rectangular beams singly reinforced without web members and made of ordinary quality concrete, keeping in view the elastic limit of the steel as the criterion of safety, and do not "purport to represent the average value at working loads." When the conditions are different the value adopted should be different.

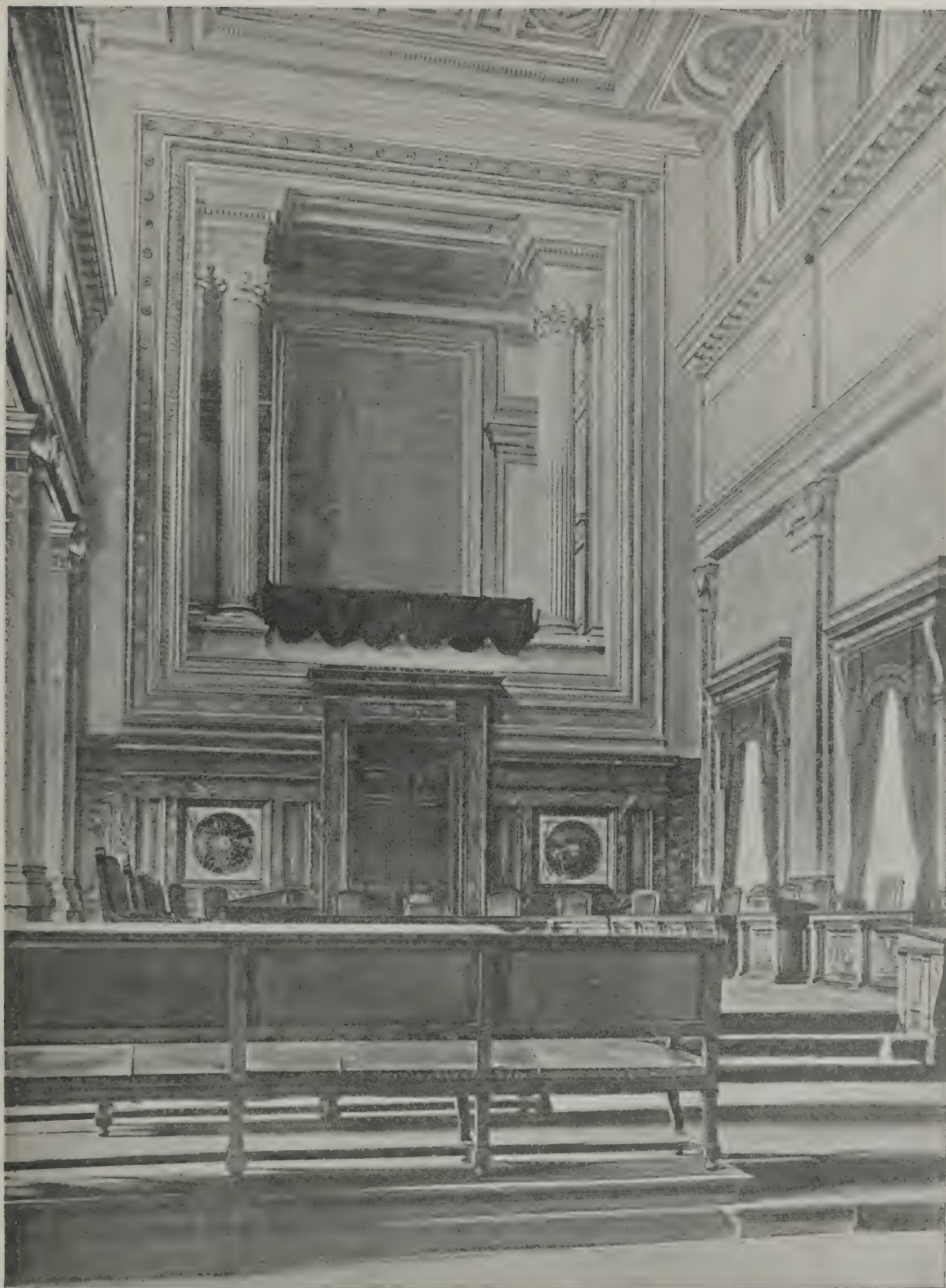
London, S.W.

H. KEMPTON DYSON.

## ORNAMENT ON THE OPERA HOUSE, PARIS.

THE detail from the Paris Opera House which we illustrate on page 175 of this issue is the crowning feature on the dome over the side pavilion to the main building. It is an astounding piece of metalwork, exhibiting, just as much as the sculpture and stone carving, Garnier's desire to always do something fresh and vigorous. What the oar-like projections are intended to represent we do not know; they look very strange when viewed closely, as in the photograph which we reproduce, but have an undoubtedly good effect when seen at a distance.





THE GRAND HALL OF AUDIENCE IN THE COURT OF CASSATION, PALAIS DE JUSTICE, BRUSSELS.

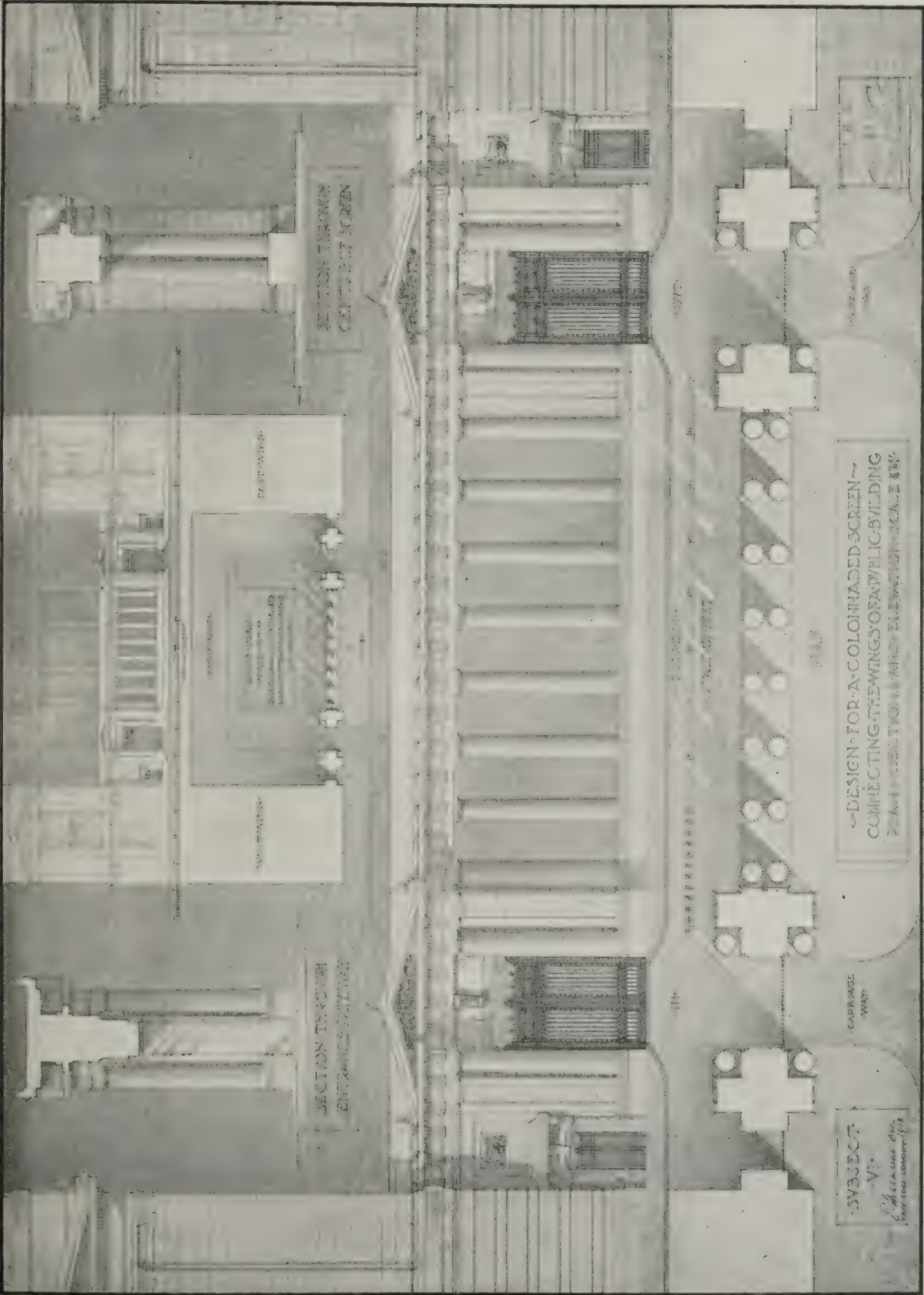
J. POELAERT, ARCHITECT.

Here, as throughout the building, a huge sense of scale is attained by the adoption of a gigantic order.

LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS.



STUDENTS' PAGE.

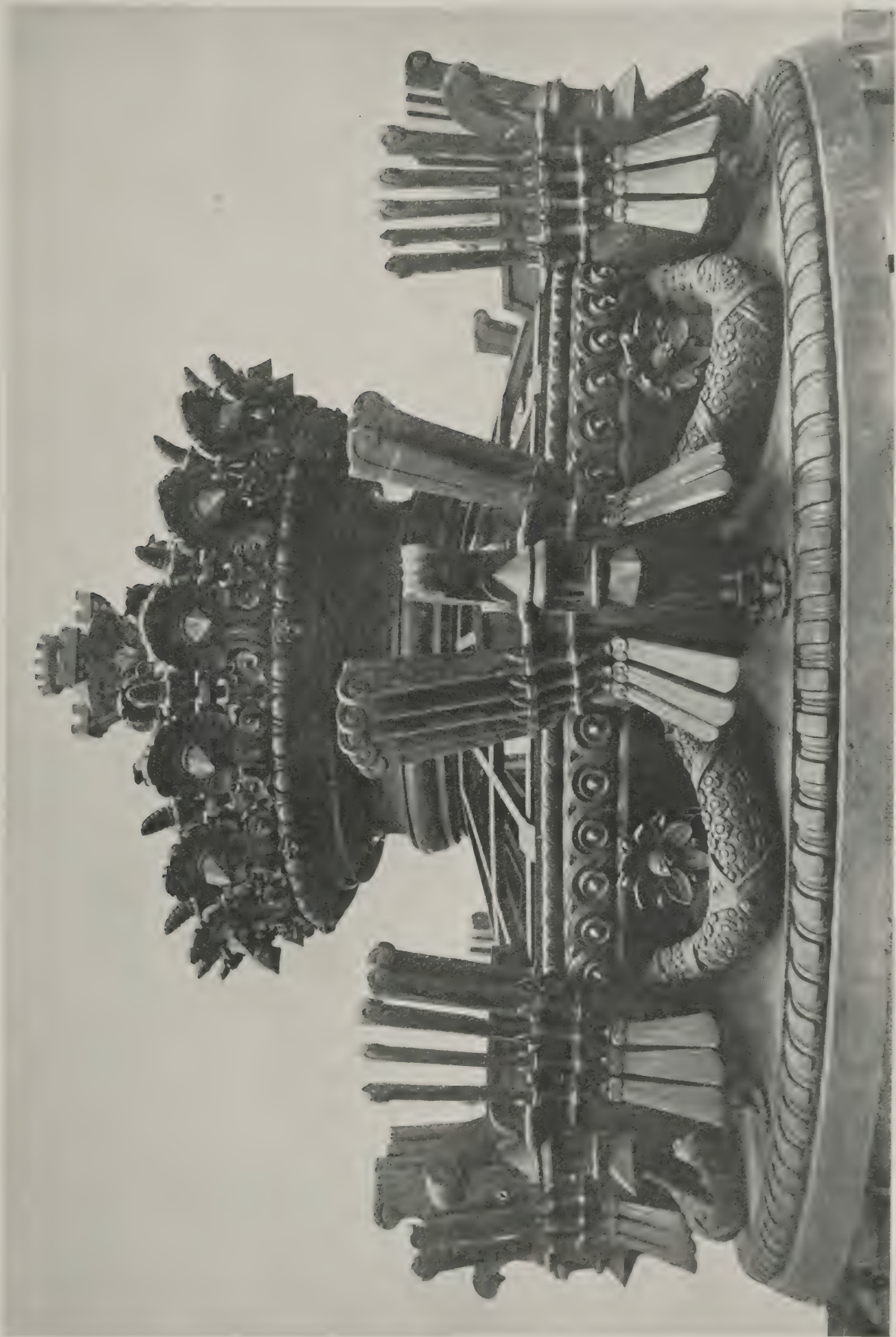


TESTIMONIES OF STUDY FOR R.I.B.A. FINAL EXAMINATION: APPROVED DESIGN, SUBJECT VI. (a). BY E. MUSMANN, B.A.

(See page 167.)

LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS

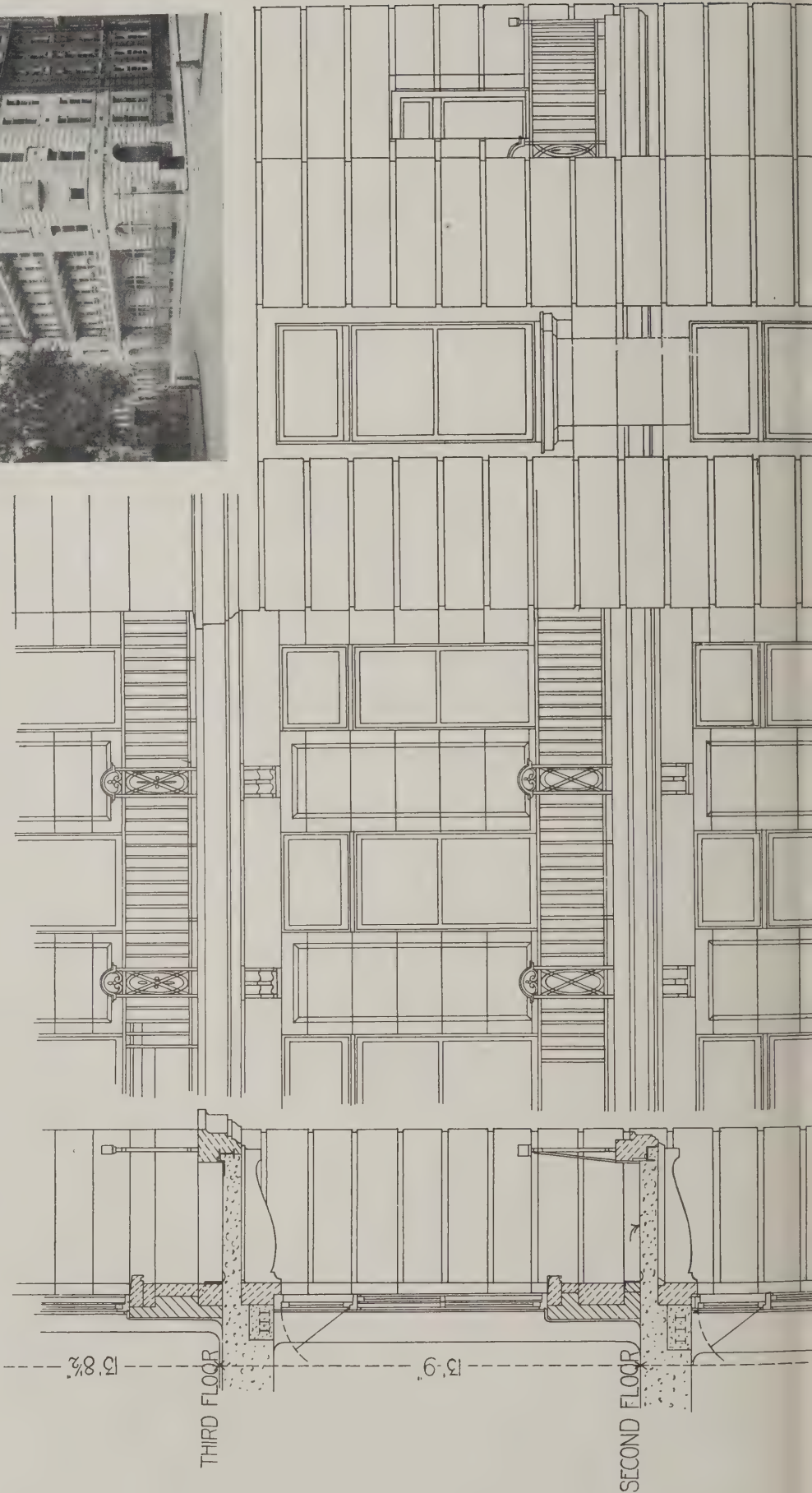




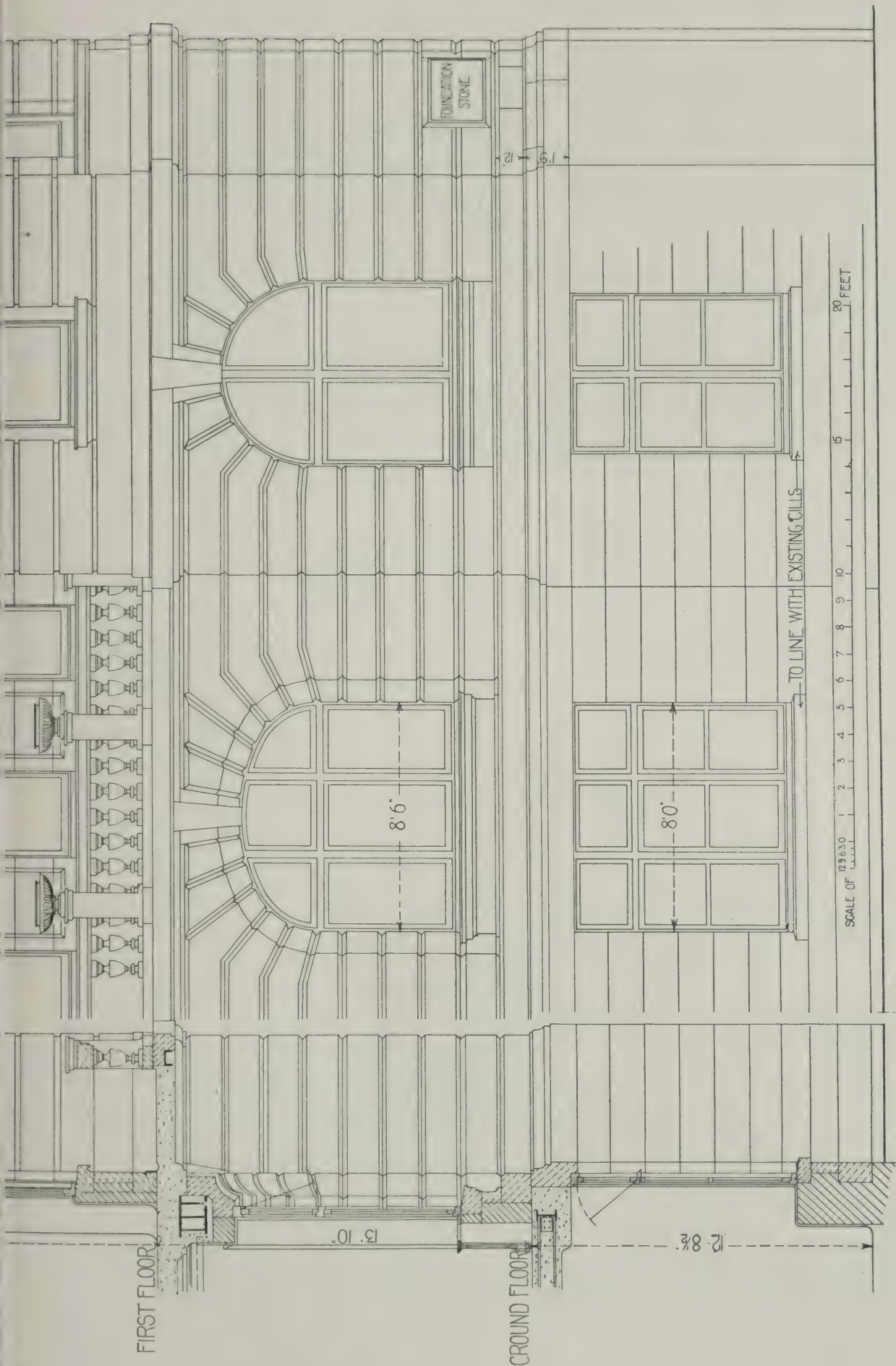
DETAILS OF ORNAMENT FROM: THE PARIS OPERA HOUSE.—IV.

(See page 170.)

LONDON HOMŒOPATHIC HOSPITAL.  
EDWIN T. HALL, F.R.I.B.A., ARCHITECT

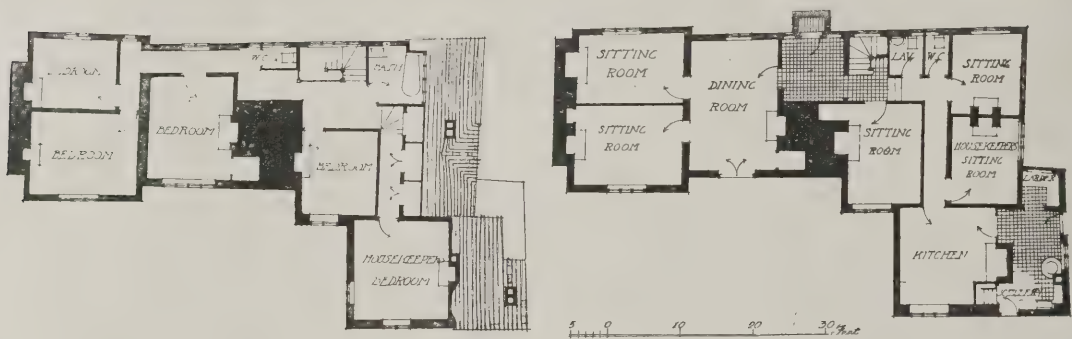






WORKING DRAWINGS BY WELL-KNOWN ARCHITECTS—XVI.

(See page 107.)



MODERN SMALL HOUSES. XVI.—“THE GROVE,” MILL HILL, MIDDLESEX.

STANLEY HAMP, A.R.I.B.A., ARCHITECT.

(See page 169.)



## THE R.I.B.A. DRAWINGS AND DESIGNS.\*

BY W. CURTIS GREEN, F.R.I.B.A.

I PROPOSE to begin with the measured drawings, passing on to design. With regard to the work done on the building, I have two very simple suggestions to make: the first, to measure from a base or axial line, applies particularly to Gothic; the second is the use of sheets of scaled paper for all plottings on the spot. The exercise of setting out freehand to scale has several advantages; first, the result is more likely to be accurate, for in working to scale you tie and check as you go along, thus avoiding the horrible dilemma of finding on returning home that the dimensions will not work out; secondly, you are unconsciously forming a correct estimate of scale and of the proportion of parts to the whole and to one another; thirdly, you are working in a way intelligible to other people who may have to use your notes; and, lastly, you will accustom yourself to the study of design unsupported by the drawing-board and T-square.

Fine draughtsmanship does not consist in the ruling of beautiful straight lines, but in an adequate presentation of the character and sentiment of the building. Thus it seems to me that the authors of the surveys of Southwell Minster and of Blenheim Palace, of the Manchester Town Hall and Cawston Church have achieved something; they have given the best of themselves, and are fuller men than before. They have analysed each a fine building, and, while giving due attention to all the difficulties of the delineation of mouldings, ornament, and sculpture, they have arrived at an understanding of the building studied, and have made a valuable record.

Among such good work it is difficult to feel more than a natural inclination to one or the other; the prize has been awarded to Mr. H. C. Mason ("Pax") for his Blenheim drawings, an award with which no one will quarrel. The author has used a sensitive line, and consequently maintained the scale of the building; the shadows are indicated, but they are not sufficiently worked out by rule in lesser detail.

Mr. L. B. Leech ("Mitre"), who has received honourable mention for his wholly admirable set of drawings of the Chapter House and its vestibule, Southwell Minster, is a master of beautiful line used with extraordinary accuracy. The sheets are perhaps a little crowded, but are well arranged and form a complete monograph. In the drawing of Gothic mouldings care should be exercised in the use of compasses; Gothic is full of surprises.

Two students have measured Francis Goodwin's masterpiece at Manchester, the old town hall, now destroyed. The best of these, by Mr. Gordon Hemm ("X"), receives honourable mention and is of value, and no doubt will be carefully preserved by the Manchester Corporation. The very complete survey of Cawston Church also receives honourable mention; the delicate and refined drawings of St. Mary Abchurch and the careful study of St. Vedast, Foster Lane, the latter threatened by the housebreaker, both show evidence on the part of their authors of enthusiasm and enjoyment in their work.

"Walworth" has disciplined himself by measuring Fishmongers' Hall. To him and to "Postman" I say, "Stick to it and you must advance."

I must refer also to the measured drawings forming part of the work for which Mr. Butt has deservedly won the Arthur Cates Prize. The Strand front and vestibule of Somerset House have been, no doubt, measured before, but I do not recollect ever seeing drawings of so much feeling for the subject.

*The Pugin Studentship.*

The work for the Pugin Studentship, the blue ribbon for architectural draughtsmanship, is up to the standard of all but a very few years, so far as my memory goes; that is to say, it is not stamped by anything of outstanding merit, although a high level of excellence is maintained. The coveted prize is won by Mr. Paterson for a nice collection of capable drawings; Henry VIII.'s Great Hall at Hampton Court is admirably shown in the half-inch scale drawings, while the best of his sketches is that of the roof. We have learned to expect the drawing of a sedilia, a work of incredible labour, and are not disappointed, but surely all this class of work has been recorded now. Might not students turn their attention elsewhere to mediæval carpentry—roofs and floors, staircases and lanterns, for example?

Mr. Joseph Hill has worked hard, and shows a fine combination of qualities—thoroughness with some freedom and go—which should carry him far. The Chapter House at Wells is the central piece; it is a question whether the rough pencil-sketches are of sufficient interest to justify their position on the sheets.

It would be hard to find a pleasanter example of sixteenth-century brickwork than Eastbury Manor House, Barking. Mr. Leathart has made a painstaking study of it, and it is to be hoped he will complete the survey. Mr. Leathart is more at home with the pencil than with the brush. In measuring a bay of the Angel Choir at Lincoln, Mr. Peake Anderson has concentrated himself on one of the most magnificent examples of thirteenth-century art in the country, and is not likely to regret the time so spent.

Mr. F. E. Howard has the essential quality of accuracy; so far as one can judge, the drawings of screens at Norwich, Southwold, and Attleborough leave little to be desired. The range of subjects chosen is rather late; they have the merit of being of one period. Mr. Lewis and Mr. Powell are, I imagine, beginners; they are comparable in so far as both show taste in the choice of subject and in the medium used.

*The Owen-Jones Studentship.*

For finished draughtsmanship the drawings submitted this year for the Owen Jones surpass anything in the exhibition; so high is the standard and so equal the merit that of the four competitors one receives the prize and the remaining three honourable mention—a circumstance surely unique in the annals of the Institute. It is difficult to commend where all are so excellent. The drawings that appeal to me most personally are those of the decorative artist rather than of the architect. Mr. Huggill's drawings of the Sala Piccolomini, Siena, for purity of

colour and accuracy of tone are irresistible, while the sheet of stained glass from Chartres is no less excellent. Comparing this student's presentation of the Lower Church at Assisi with that of Mr. Walter Keesey adjoining, one is compelled to the belief that Mr. Keesey's is the truer rendering. His are masterly drawings, and they are supported by a valuable key section of the whole church and a sheet of details. This student shows also two sheets of the use of coloured marbles from Rome, Florence, and Venice. Mr. Beaumont's studies of glass are superb, so also is the little drawing of the ceiling of the Villa Madama, Rome: some of the drawings are in oils. Mr. William Harvey's collection of Byzantine mosaics is a fine exercise in architectural colour decoration, and I think the terms of the studentship are most fairly interpreted by awarding the prize to Mr. Harvey. This student has made a complete study of the Dome of the Rock, Jerusalem. He has chosen to treat it diagrammatically; a legitimate treatment, yet one sacrificing delicate modulations of tone as affected either by the technique of mosaic or by light playing upon rounded surfaces.

*The Tite Prize.*

The subject for the Tite Prize this year is the façade of a royal palace in a city, approached by a wide avenue, designed according to the methods of Palladio, Vignola, Wren, or Chambers. The prize was founded by Sir William Tite for the study of Italian architecture.

The design by Mr. Cyril Farey ("Palladio") has won the prize and is by common consent the ablest in the room. It is a work of imagination, pleasantly original, without offending any of the canons of the law. The drawings are beautifully rendered, indeed the draughtsmanship and ornament on the half-inch scale detail give a French flavour which the general design does not possess. The central feature of the elevation is perhaps rather overpowering for the plan. The absence of meaninglessly applied pilasters is highly commendable and is a step in the right direction, and the long balconies are of great value. The detail drawing is a clean study, though the appeal is foreign to our temperament and superficial.

The work of Mr. Bryan Watson ("Roma") receives honourable mention for a restrained and monumental design. He has hardly faced the conditions in the right spirit, for the building is to be four stories high, and by omitting the lighting of the top storey, or concealing it behind the parapet, he has considerably simplified the difficulty which others have squarely faced. This design does not escape some of the defects of its very high qualities; it is somewhat heavy and just a little dull. The roof should be raised a few feet to counteract the foreshortening to which every elevation drawing is subject. A facility in design by means of perspective diagrams would save students many similar mistakes.

Next to "Roma" is hung an admirable design by "Strike Sure." It is very English in character and pleasantly reminiscent of one of the ablest schemes submitted in the competition for the London County Hall; it does not perhaps quite hang together, suggesting rather a side

\* Extracts from a critical review read at the meeting held on February 3rd.



than a front elevation; possibly the whole of the centre should have been treated with detached columns. The design by "Juvenis" has an extraordinary family likeness to that of "Palladio"; I am tempted to say the voice is the voice of "Juvenis," but the hand is the hand of "Palladio"! If this be the case all honour to "Palladio" for a man of pluck and resource. The screening of the ground floor windows is a legitimate and pleasant device to give a monumental effect. A weakness of the design is felt in the treatment of the main cornice at the recesses at either end of the façade.

"Lorelli" has rather overdone the quality of breadth in the spacing of his bays and marred its value by planting on coupled columns to bridge the voids. "Green Seal" comes to grief in an otherwise dignified front in the fenestration, in the recess over the central entrance, good in itself but without visible means of support, and in the reckless introduction of ill-drawn figure sculpture, which would have been better omitted. The colouring of these plans was presumably done by candle-light.

"Circle's" otherwise careful design hardly realises the conception of a royal palace. The design by "Italy" is a scholarly piece of work; the method of showing it is rather unsympathetic and does not do justice to its good qualities. "Gregarah" needs to spend more time in composition; no amount of labour on the drawings can overcome primary defects. "Facilio's" design shows a lack of restraint; many features could be omitted with gain.

"Patrick" is on sound lines; the secondary divisions are a little mean and out of scale with the rest of the front. "Butterfly" gains variety at the expense of repose; the central divisions of the façade are not happy, the result again of insufficient study preparatory to beginning the finished drawings.

#### *The Soane Medallion.*

The Soane Medallion and Travelling Studentship is the most coveted of the Institute's prizes. The subject of this year's competition is a severe test of a man's capacity, particularly when, as must often be the case, he has only the evenings in which to tackle it. A terminal station, with the main frontage facing an open square or "place," and side frontages to wide roadways, twelve lines of rails and seven platforms are to be shown, and the building is to include all the varied requirements, excepting an hotel, of a great railway terminus; it is a big problem, and some men who have thought out the practical points do not appear to have had time or ability to spare for the architecture, and vice-versa; there is no precedent in this country for the student to turn to. King's Cross Station, the finest conception we have, is spoiled by its wretched approach, and is, besides, behind the times in accommodation. We have therefore to look across the sea to Paris, Leipzig, and New York for the latest and most successful solution of a new problem. There are fourteen designs submitted and none of them have solved the entire problem. The winner of the prize, Mr. Whitelaw ("Solertia Ditat"), has taken the biggest view of the subject: instead of being embarrassed by the area of his paper, the sheets are too small for him. In speaking of his design I must preface my remarks by pointing out that it would be unwise for a student to presume on the unfinished state of these drawings another year. Mr.

Whitelaw is fortunate, but he is an accomplished draughtsman—he has shown that on these walls on other occasions, even if evidence were lacking in these drawings, which is far from the case. The present work gives the impression that their author is living in the clouds, the ideal point of view for the architect, provided always that he retains enough ballast to come down to solid earth at the right times and in the right place.

In their unfinished state Mr. Whitelaw's drawings are a little difficult to follow; for instance, the approaches, while excellent in plan, are insufficiently explained in section; it would seem that direct access has been sacrificed to the monumental value of a fine podium 25 ft. high, which cabs and foot passengers have to ascend; in the ideal city, the trains would leave and enter below the street level.

Mr. Whitelaw has accepted the popular view of a span roof over the whole station, but he has not, as in the case of Mr. Cable ("Registered Luggage"), been overwhelmed by it. The latest and most approved view in the United States appears to be to cover the platforms with low roofs open the entire length of the track. One man only, Mr. Bradshaw ("Rocket"), has been to the pains of discovering this. Mr. Whitelaw's concourse, as do many others, suffers architecturally from being under the same roof as the tracks, though he has made a feature of the three great arches marking the division.

Mr. Bradshaw ("Rocket") gets a well-earned honourable mention for his fine design; it seems to me to be marred only by one blemish: insufficient preliminary study. The errors are practical rather than aesthetic and could easily have been remedied; the cab approaches are inadequate and inconvenient. It is a pity Mr. Bradshaw did not make more of the concourse. As a composition some may think the central feature overpowering. I do not take that view, the eye is prepared for the great hall in the approaches, it is a suitably planned climax to a design of much ability pleasantly proportioned and refined in detail.

Two other competitors have treated the roofing of the platforms on low lines; both are designs of considerable merit. "Charge" has realised the character of a railway terminus, founding his conception on the great Verona gateways of San Michele's; the plan is unfortunately inadequate to the subject. The other, by "O. R.," shows an altogether delightful lay-out; the faults are again those of plan, he has evidently studied McKim's fine Pennsylvania Station, New York.

Mr. Cable ("Registered Luggage"), on the other hand, who receives honourable mention, has approached his task in the right way and has faithfully mastered all the practical factors of the problem; but having mastered them he has allowed his less robust architectural imagination to be submerged by the giant proportions of the utilitarian growth. The effect of this is more pronounced in the drawings than would actually be the case. The front is an admirably reserved and conscientious piece of design, it might be described as "moderate to excess"; the flanks are weak, they are too slight in character to satisfy the eye as an abutment to the tremendous roof which overshadows them. These drawings, particularly of the engineering details, are quite the best in the room.

"Queen's Knight" has manufactured difficulties in order to get his carriage entrances and exits into the centre of the

plan; in other respects his design is well thought out. "Peter Loo" sends an interesting composition founded on the supposition that the trains leave and enter at a high level; the levels, entrances, and exits are skilfully arranged. The plan is compact if a little tight, its parts are hardly sufficiently articulated. Æsthetically the Great Hall is somewhat narrow for its length to be a finely proportioned room.

The design by "City Gates" is admirable in plan; all the factors are duly weighed and rightly placed; the arcade of shops is a pleasant if not an original feature. It is a question whether a circumdomed hall is suitable to a railway station; such a form would bewilder passengers who do not want to start a circular tour in the station. "White Swan" has tackled his approaches well, but foot passengers would complain at the up-and-down-again method of approach. "Eclipse" shows careful work, but he has hardly come close enough to the problem.

The Grissell Medal is not awarded this year; no one has realised the idea of this studentship since Mr. Box sent in his interesting design for a great timber-roofed hall for a skating rink.

#### *The Saxon Snell Prize.*

Three designs are submitted for the Saxon Snell Prize. The subject is a design for a sanatorium. Mr. Vincent Hooper gains the prize. Mr. L. G. Pearson's scheme is an extremely pleasantly proportioned block of building.

#### *The Essay Medal.*

There remain only the essays, which I have not read; I will conclude with a letter from Professor Lethaby, one of the judges:

"The essays were thirteen. We unanimously thought them a remarkably good lot, showing real work, thought, and interest. That recommended for first, entitled 'The Preservation of Ancient Monuments,' is most thorough, and forms a connected history from early times, with a very good list of books, etc. The essay on 'Railway Stations' is a wonderfully useful study of the development and present state of railway station design, again with a quite splendid bibliography. It is a study that all who have to design a big railway station would find most useful. Two or three others are entirely good and real pieces of work. The one point to make clear is that we want a *study* of a subject with *new work* on it, not mere notes on the 'Early English and Decorated Styles' from text-books. Five or six were truly contributions to knowledge. The competition is a success."

A vote of thanks, both to Professor Blomfield and Mr. Curtis Green, was proposed by Mr. Frank Dicksee, R. A., and seconded by Sir L. A. Selby-Bigge.

#### *New Art Gallery for Dublin.*

A special meeting of Dublin Corporation have passed a resolution agreeing to apply the sum of £22,000 to the erection of an art gallery, provided that the Citizens' Provisional Committee presented to the municipality free of charge a site for the erection of the building, and a further sum of £3,000 to be added to the amount allocated by the corporation for the building. The money for the site is being raised by public subscription, and about £7,000 has been collected. The erection of such a gallery is the condition on which Sir Hugh Lane offers to present to the public his valuable collection of pictures.



## COMPETITIONS.

### *Municipal Offices, Barnet, and Public Hall, Norbury.*

The Competitions Committee of the Royal Institute of British Architects request Members and Licentiates not to take part in the above competitions until a further announcement is made that the conditions have been brought into a conformity with the Institute "Regulations." The committee also request competitors to return their copies of the conditions immediately to the promoters.

### *Designs for Cottages and Bungalows.*

Particulars have just been issued of three competitions instituted in connection with the "Ideal Home Exhibition" to be held at Olympia in October next. Designs are invited respectively for (1) a workman's detached cottage, (2) a pair of workmen's semi-detached cottages, and (3) a bungalow for four single persons; a prize of £50 being offered in each case. It is intended to erect either the best single cottage or pair of cottages and the best bungalow on allotted sites in the exhibition, together with scale models of such other designs as it may be thought desirable to show. The designs will remain the property of their authors, but the "Daily Mail"—who are promoting the exhibition—reserves the right to publish any of the designs in any form, and to withhold the awards should the judges consider that a high enough standard has not been reached. Mr. Leonard Stokes, F.R.I.B.A., is acting as architectural adviser, and, with two other judges to be nominated by him, will assess the competition. The prize winners will be required, if called upon, to furnish a specification and  $\frac{1}{2}$ -in. detail drawings and to supervise the erection of their designs at Olympia or elsewhere, for which services a commission of 5 per cent., plus travelling expenses, will be paid, in addition to the prize. Drawings are to be delivered not later than May 31st next to the Secretary, Ideal Home Exhibition, 130, Fleet-street, E.C., to whom any questions relating to the competition can be addressed up to March 15th, after which date no questions can be answered. Further particulars can be obtained on application to the Secretary, at the above address.

### *Houses or Tenements, Belfast.*

The assessors in this competition—Mr. H. A. Cutler (City Surveyor) and Mr. Henry Seaver—have announced the following awards: 1 (£25), Messrs. Chillingworth and Levie, Cork; 2 (£15), Mr. M. B. Bennett, Brighton; 3 (£10), Mr. I. St. I. Phillips, Belfast.

## LIST OF COMPETITIONS OPEN.

FEBRUARY 22.—TRAINING COLLEGE, GLASGOW.—Limited to six selected architects.

FEBRUARY 26.—DECORATIVE FIGURE COMPOSITIONS.—The Academy of Fine Arts, Bristol, invite competitive sketch designs for painted decorative figure compositions to fill four segmental lunettes under the dome. The selected artist to receive £500 for the work. Assessors, Messrs. Beresford Pite, W. R. Lethaby, and Gerald Moira. Sections to be seen at the office of the architect, Mr. S. S. Reay, F.R.I.B.A., 47, Milsom Street, Bath. Designs to be sent to Professor Beresford Pite, F.R.I.B.A., Royal College of Art, South Kensington, S.W.

MARCH 1.—CITY HALL, WINNIPEG.—Limited to British Architects in Canada. Assessor, Mr. Leonard Stokes, F.R.I.B.A.

MARCH 1.—MUNICIPAL BUILDING, RANGOON.—Premiums, £300, £200, and £100. Particulars (£1, to be refunded), from Messrs. Ogilvy, Gillanders and Co., Sun Court, 67, Cornhill, London, E.C.

MARCH 1.—ROYAL PALACE AND LAW COURTS, SOFIA.—Particulars of this competition are obtainable from the Commercial Intelligence Department, Board of Trade, Basinghall Street, E.C.

MARCH 31.—GARDEN SUBURB, IPSWICH.—Competitive designs are invited for laying out about 26 acres of land as a working-class suburb on the lines of a modified garden city. Premiums, 50, 30, and 20 guineas. Conditions and plan (10s. 6d., returnable) from Mr. Will Bantoft, Town Clerk, Town Hall, Ipswich.

APRIL 2.—HIGH SCHOOL, MOTHERWELL.—Dalziel School Board invite designs for a new high school. Assessor, Dr. J. J. Burnet, A.R.S.A., F.R.I.B.A. Second third, and fourth premiums, £40, £30, and £20. Conditions may be obtained on or before February 15 from Mr. Thomas M. Young, Clerk to the School Board of Dalziel, Motherwell.

APRIL 18.—SECONDARY SCHOOLS, READING.—Reading Education Committee invite designs for Kendrick Boys' and Girls' Secondary Schools from architects within the borough. Premiums, 70 guineas and 30 guineas. Particulars, Education Office, Blagrove Street, Reading. Mr. Ernest Newton, A.R.A., F.R.I.B.A., is the assessor.

APRIL 29.—MUNICIPAL OFFICES, BARNET.—Barnet Urban District Council invite designs for new municipal offices, to be erected at a cost not exceeding £4,000. Premiums, £25, £15, and £10. Particulars from Mr. W. F. Wilkins, M.S.E., 40, High Street, Barnet. Designs to be delivered to Mr. H. W. Poole, Council Offices, 40, High Street, Barnet. (See note above.)

NO DATE.—KURSAAL, FOLKESTONE.—Cost not to exceed £29,000. Premiums, 100, 50, and 25 guineas; premiums of accepted design to merge in fees. Apply to Town Clerk, Folkestone.

## THE AUSTRALIAN FEDERAL CAPITAL COMPETITION.

The following communication has been addressed by one of the competitors to the Government Department which had charge of the Australian Federal Capital Competition. It has been forwarded to us by the author, presumably for publication, and as it raises certain definite points on a subject of general interest, it is here reproduced:

[Copy.]

Chicago, Ill., U.S.A.,

December 21, 1912.

The Department of Home Affairs, Melbourne, Australia.

Sirs,—The case with returned competitive design for the federal city of Australia was received December 20th, and I take this opportunity of calling the Department's attention to an unfair treatment given the competitive designs by the board appointed to investigate and report on the submitted plans.

With the Department's invitation to an international competition followed a programme which formed the basis for the submitted designs, and which should also have been the basis for the judgment of these; but the board selected for this purpose substituted a programme of its own invention in regard to which the judgment and awards were made. This new programme is printed in the reports, page 14,

and differs in important directions from the original one. I here call attention to the following points:

1. The original programme called for a design for a town of 25,000 inhabitants, but the plans premiated and selected for publication show that this has not been adhered to. To arrange a design for this limited number of inhabitants means that it must locate the essential elements of town life, such as municipal offices, railway station, tramway lines, hospital, post-office, market-places, etc., inside this area, and indicate the lay-out for future extensions outside that. By ignoring this demand an unfair advantage is given to designs which show a scattered location of the elements named over areas which require a many times larger population.

2. The most serious technical problem confronting the designers following the original programme was the stormwater problem. On the proper solution of this depends the very existence of a town in that mountainous region, because if it is not properly protected the stormwater will sweep out every structure in the middle of the town site. To change this item of the programme from one of the most serious importance, supplemental by thoroughly technical data, to one of hygiene, as is done by the "Designs Board," is to say that dams, weirs, and locks can be replaced by umbrellas and rubber boots. Impossible designs were consequently premiated, and plans which indicated proper technical solutions ignored. The published eight plans prove this.

3. Among the elements demanded in the original programme was also that of markets. This involves, as a matter of course, a complete market plant for truck gardeners, farmers, fishers, and cattle raisers, with such accessories as shambles and refrigerating plants—a most prominent and conspicuous feature of a town plan, which requires an area of 100 to 150 acres, with complete railway and tramway connections and with landing for river barges. The substituted programme eliminated the market feature entirely, and designs were presented on which, in an impossible place, was noted "market centre," thereby reminding of the barnstormers who provided their stage settings by means of a dry goods box on which was written, "This is Jerusalem," while no efforts were made to outline the market centre on the plan.

As this is a matter of importance to the Australian people, who will have to suffer the dire consequences when the accepted plans are realised and show their shortcomings, I trust that the Department of Home Affairs, when its attention is called to these irregular proceedings, will see that at least some moral satisfaction is provided for the authors of the 129 rejected designs by giving publicity to this complaint and by guaranteeing a proper revision of the premiated plans before final adoption.—Very respectfully,

ALFRED J. ROEWADE.

Hollywood, near Chicago, Ill.

### *An Antiquarian Centenary.*

The 100th anniversary meeting of the Newcastle Society of Antiquaries was held recently in the Castle, Newcastle-on-Tyne, the Duke of Northumberland, president, in the chair. The president in moving the adoption of the report, suggested that the centenary should be commemorated by the preparation of a record of the history and achievements of the society, and a committee was selected to consider the suggestion.



## FIRE PREVENTION NOTES.

*Fire Precautions at Ghent Exhibition.*

The organisers of the forthcoming Ghent Exhibition are evidently determined to do all in their power to protect the buildings and contents against all possibility of such a disaster as that which overtook the British and Belgian sections of the Brussels Exhibition of 1910, largely owing to the failure of the water-supply. At Ghent an ample independent supply has been installed, and the grounds are mined in every direction by water-mains serving hydrants distributed throughout the grounds and pavilions, and so freely provided that in no part of the exhibition are two hydrants more than 50 metres apart, the average distance being considerably less. All the buildings are isolated and are not less than ten metres apart. Moreover, the exhibition is to have its own special fire-brigade station, equipped with motor fire-engines and a staff of twenty-five men belonging to the municipal fire brigade.

*The Fire Protection of London.*

At the annual meeting of the Kensington Ratepayers' Association, held at the Kensington Town Hall last week, under the presidency of Lord Ritchie, a strong protest was raised against the delay which has occurred in applying the provisions of the London Building Acts (Amendment) Act, 1905, relating to protection against fire. One of the speakers stated that fewer than 900 buildings had been dealt with out of 98,566 that came under the sections relating to protection against fire. If these figures are trustworthy, and the same very steady rate of progress—900 buildings in seven years—is unflinchingly maintained, the survey will probably be completed by about the year 2674!

*The Leniency of the L.C.C.*

The effective portions of the Act are sections 7, 9-14. Section 7 provides for protection against fire in new buildings; Section 9 applies the same principles to existing buildings; Section 10 refers to projecting shops; 11 to the storage of inflammable liquid; 12 to means of access to roofs; 13 to the conversion of buildings; and 14 to the maintenance of the means of escape. Of the remaining six-and-twenty sections, many are occupied in setting forth the duties of district surveyors and the fees to which they are entitled. Considering that the metropolitan district surveyors number between fifty and sixty, it cannot be supposed that, collectively, they are over-exerting themselves in the interests of fire-prevention. The fact is that the 1905 Act became immediately unpopular with property-owners, and the young zeal of the district surveyors to enforce its provisions was severely snubbed by the Press and was not greatly encouraged at headquarters. This perhaps explains the lamentations (or the reason for them) of the ratepayer that there remain 97,666 cases, or thereabouts, to bring into conformity with the Act, and that at the gauged rate of progress it will take about 750 years to go all the way round. The requirements seem to be so expensive, not to say oppressive, that the County Council dare not enforce them except very gradually; for the simple but not very noble reason that the London County Council is a popularly elected body.

*London Fire Brigade Chief's Salary.*

A public body never fails to fortify itself with some more or less plausible excuse

for raising the salary of an official. For example, the General Purposes Committee of the London County Council, in recommending that, as from the first of April next, the salary of Lieutenant Sladen, the chief officer of the London Fire Brigade, shall be increased from £900 a year to £1,000, put forward as reasons that the responsibilities of the chief officer have considerably increased—first, in connection with the protection from fire of licensed premises owing to the passing of the Cinematograph Act, and, secondly, owing to the tendency to erect in London buildings of greater cubical extent than was previously the case. Surely both reasons verge on absurdity. Why could not the committee be perfectly frank about it and state that an excellent officer like Lieutenant Sladen is well worth the money, and it would be shabby of the Empire's capital to pay its fire chief less than a round thousand?

*Protecting St. Paul's Cathedral.*

Last May experiments were made with the object of ascertaining whether a fire in the dome of St. Paul's Cathedral could be dealt with by engines at the street level. It was then found that while two motor engines belonging to the London Brigade could, when working in unison, certainly throw a jet of water right over the dome, at that height the force was so far spent that the jet would probably be useless in case of fire. This having been ascertained, it became necessary to provide better means of preserving the cathedral from the fate of its predecessors, which, in 1086 and 1666 respectively, were burnt to the ground. Messrs. Merryweather and Sons, in consultation with Mr. Mervyn E. Macartney, the cathedral architect, have devised a method of overcoming the difficulty and of ensuring prompt and ample water supply to all parts of the cathedral. A dry main has been laid on to the outer walls of the cathedral to the height of sixty feet. To the outside ends of this dry main the London Fire Brigade would, in the event of fire, couple its engines, and at the same time link short lines of hose to the outlets nearest to the scene of fire. In each corner of the cathedral 4-in. cast-iron pipes have been carried up to the 60-ft. or cornice level, and smaller pipes continue the system to the top of the dome; the pipes being all covered with a non-conducting composition as a protection against frost. The excellence of the idea is so obvious that other important buildings will no doubt be similarly protected. The system would, in the case of an outbreak, save a great deal of precious time and obviate a good deal of risk to the firemen, who, instead of hazarding their lives in the endeavour to place their hose favourably, find that, in effect, this work is already done for them, and that in order to get to work with immediate effect they have only to connect the engines to the cathedral mains. One can imagine an extension of this scheme on the lines of telephone service, so that any building connected with a central pumping station could be instantly drenched by powerful fixed engines, the time and risk of running engines through crowded streets being eliminated from the problem of fire extinction; although it might still be necessary to send a few experts, in light motors, to superintend the playing of the "set pieces." The scheme looks fanciful, but is really a quite practicable development of the ingenious idea that has been adopted at St. Paul's Cathedral.

## IN PARLIAMENT.

(By Our Press Gallery Representative.)

*Protection of Ancient Monuments.*

The Ancient Monuments Consolidation and Amendment Bill is still in a state of suspended animation and will be withdrawn this session. It has reached the stage in the House of Lords which is described officially as waiting for committee. In all probability Lord Beauchamp will introduce the Bill early next session, and there is a reasonable hope of its reaching the statute book before the summer months of the present year.

*The New Delhi.*

In the House of Commons Mr. King asked what instructions had been given to architects selected to design buildings in the new Delhi with regard to the employment of Indian craftsmen, Indian materials, and Indian traditions.

Mr. H. Baker stated that no instructions had been given to the architects on the subjects referred to. They had been informed that it was proposed to appoint as their responsible adviser Sir Swinton Jacob, who was specially qualified to advise on the points mentioned by Mr. King. Answering a further question, Mr. Baker said it was not proposed to publish the Delhi Town-Planning Committee's first report, as it was purely provisional and its recommendations were under reconsideration. The final report which was expected shortly would explain the reasons for selecting whatever site might be proposed. He would not give a definite assurance at present that the final report would be publicly available.

Mr. King asked whether Mr. Lutyens's designs for the Government House, Delhi, had been prepared for some months in anticipation of his appointment as the official architect, whether his designs were already accepted, and whether they would be subject to revision after having been publicly exhibited.

Mr. Baker said that any plan or design for a Government House at Delhi that Mr. Lutyens might have already prepared had been prepared on his own initiative and responsibility. No such plan or design had as yet been accepted, and the last part of the question therefore did not arise.

*Building and Engineering Trade Bill.*

Mr. John Ward asked the Prime Minister whether in view of the recent fatal trench accidents at Paddington and Brighton he would make arrangements with the Home Office to reintroduce the Building and Engineering Trades Bill, which was intended to enable the Home Secretary to make regulations for the protection of workmen engaged in excavating work, in the early part of next session, and whether he would try, through the usual channels, to secure the Bill a second reading, so that it might be examined by a Standing Committee and passed into law with as little delay as possible.

Mr. Asquith replied that he could make no promise for next session, but the claims of this bill would receive consideration.

Mr. J. Ward asked the Prime Minister if he would take into consideration the fact that this was the only industrial population in the country that had no protection whatever from the law. Mr. Asquith replied in the affirmative.



## SOCIETIES AND INSTITUTIONS.

ARCHITECTURAL ASSOCIATION  
CAMERA, SKETCH, AND DEBATE  
CLUB.*Mr. L. M. Gotch on Building Conditions  
in Canada.*

On January 23rd, at 18, Tufton Street, Mr. L. M. Gotch, A.R.I.B.A., read a paper entitled "The Spirit of the West." The spirit of the West—that is, of Western Canada—he said, was the dollar bill, the system of ready-money transactions, of quick sales, of hustled business, and of hurried work. It was a spirit of optimism.

He pointed out how the enterprise of the railways, particularly the Canadian Pacific Railway, had made Western Canada what it is. Under the system of land partition Western Canada was divided up into a series of small squares, certain of which, bordering the railway, became the property of the company. It was therefore to the interests of the company to found townships to serve the railway, a process the reverse of that effected in the old country.

Mr. Gotch, in showing how such towns were continually growing, pointed out that during the last three years Calgary's population had increased by 1,000 per month. It could well be seen, therefore, that there was a continuous demand for housing accommodation, for factories, warehouses, churches, shops, and all the buildings necessary to cope with the wants of an ever-increasing population.

The whole system of Canadian business renders unnecessary the possession of much capital, and on a capital of a few hundred dollars a man could set up as a builder, obtaining his materials on short credit from the various central supply houses for the different classes of materials. The contractor thus in a way acted as superintending agent, and possessed no plant of his own. His planing and joinery would be done at one of the planing mills, his bricks would come direct from one of the local brickfields, and his cement straight from the factory. The workmanship as a whole, Mr. Gotch said, was poor, but certain trades, notably that of plumbing, were of good quality and the rest were improving, thanks to the demand for a higher standard and to the technical classes, which have now 1,700 pupils. In Calgary the principal materials in the order of their importance are: Timber, concrete, brick, steel, stone and terracotta, and galvanised iron. The concrete work, on the whole, is good, the aggregate and cement both being of a good quality. The mixing, however, is shocking unless well superintended and done in a mill. When working in severe frost on important work the concrete is protected by steam pipes until the outer part is set; it is then covered with manure and sacking to keep out the frost until the whole is set. A quantity of reinforced concrete is used, but the general tendency is for all the members to be too heavy.

Freightage and labour are both expensive items, and orders from the East are often considerably delayed during the fall by the harvest having the first claim on the railways. To give an idea of the cost of labour, Mr. Gotch quoted the following figures: Stonemason, 2s. 10d. per hour; bricklayer, 2s. 0d. per hour; carpenter, 2s. 2½d. per hour; plumber, 2s. 7½d. per hour. Labour being so dear, certain fea-

tures, such as stone cornices, become too expensive. This, and the difficulty of obtaining stone of sufficient dimensions, gives rise to a spurious form of architecture—the fixing of a galvanised iron cornice to a light wooden framework, which is often painted and stippled with the sand brush to make it look like stone.

Mr. Gotch illustrated a few general forms of timber construction, the timber mostly used being British Columbia fir and cedar and spruce. Cedar shingles are much used both for roof covering and for wall hanging. As the action of the sun causes the wood to bleach, stains and preservatives have to be used. He remarked that there is quite a demand for green roofs as a relief to the eye after the monotonous prevailing brown of the prairie.

In 1910 there were fourteen practising architects in Calgary. Now there are over thirty. There is an Act which provides that no architect may practise unless he is a registered member of the Alberta Association of Architects, admission to which body may be obtained by examination. Competitions are, on the whole, he said, badly run, the predominance of "graft" and the existence of cliques being two adverse factors; but lately there has been a marked improvement both in the conditions and the assessing.

He pointed out that there are great educational difficulties for architectural students owing to the newness of the country and the consequent lack of an architecture of the past, which in Europe forms such a valuable training ground. There is also a lack of good modern draughtsmanship to set the standard in the country. This they hope to remedy in a measure by forming associations having their aims and aspirations similar to those of the architectural Association of London, and they hope also to form a collection of drawings, especially measured drawings, made by students in the Old World.

As regards the actual practice, Mr. Gotch said that the drawings and specifications are made as complete as possible; but no general quantities are taken out, the builders in estimating having to take out their own. Very often in the smaller work they only guess at these, and the differences in the estimates are sometimes enormous.

He recommended no one to go to Canada with the intention of practising as an architect if he were not prepared to work at high pressure always and to face the realities of a prosaic practice without being able to spend much time on architecture as an art. He urged the advisability of setting up in a coming township rather than in a well-established city.

LEICESTER SOCIETY OF  
ARCHITECTS.*Mr. A. S. Jennings on Hygienic Paints.*

At the usual meeting of this Society at its rooms in St. Martin's East, Mr. Arthur Seymour Jennings gave an address upon "Modern Progress in Paints and Painting, with Special Reference to Hygienic Paints." The president, Mr. A. H. Hind, F.R.I.B.A., was in the chair. Mr. Jennings observed that greater progress had been made in regard to paints in the last ten or fifteen years than in the preceding century. He urged that it was an error to suppose that because materials were of comparatively recent introduction

they were therefore inferior. It was very undesirable to economise by using inferior paint, but the best qualities were not necessarily allied with white lead, linseed oil, and turpentine as ordinarily used. The speaker proceeded to refer to the use of white spirit, which, while less than half the cost of turpentine, was, he said, quite as good for ordinary purposes, and he went on to deal with the zinc compounds which were used as substitutes for white lead. He thought it was probable that the report of the Departmental Committee on lead poisoning would recommend either total prohibition of the use of white lead for interior painting or its use under very drastic regulations. From humanitarian motives alone he thought they ought to consider the possibility of the use of such materials as involved no danger of lead poisoning among painters.

GLASGOW ARCHITECTURAL  
CRAFTSMEN'S SOCIETY.*Hampton Court Palace.*

At a meeting of the Architectural Craftsmen's Society, held in the Royal Technical College, Glasgow, on January 31st, Mr. James S. Boyd, Licentiate R.I.B.A., chief assistant in the architectural department of the College, delivered a lecture on "Hampton Court Palace." It was pointed out that in this palace one could not find (with the exception of the Italian terracotta work) any architectural remains of the period of the Early Renaissance. The work of this period, unfortunately, along with much of Henry VIII.'s work was swept away to make room for William III.'s extensions in 1690. The beauty and charm of the Tudor brickwork in the chimneys and turrets were particularly dwelt upon, and the detail of the excellent cut brickwork of the former was described. Special reference was made to the restoration of the old moat and bridge, the remains of which were exposed to view in 1909. The lecturer urged the students present to make a close study of this charming palace, where every facility is given for measuring and sketching. The lecture was illustrated with coloured diagrammatic plans of the palace and a large number of slides showing the different phases of the buildings, the surrounding gardens, and the district.

NORTHAMPTONSHIRE ASSOCIATION  
OF ARCHITECTS.*Mr. J. A. Gotch on "The Homes of  
Queen Elizabeth's Courtiers."*

Before the Northamptonshire Association of Architects, last week, Mr. J. A. Gotch, F.R.I.B.A., president, read a paper on "The Homes of Queen Elizabeth's Courtiers." Mr. Gotch said that with the advent of Elizabeth there had sprung up a strong desire for better homes, and it only wanted the tranquillity afforded by Elizabeth's strong rule to set people building all over the land. The rage for bricks and mortar became universal. Almost every manor house in the country was either enlarged or rebuilt, while some of the principal nobles erected vast palaces worthy, as they somewhat doubtfully hoped, of the most resplendent majesty of the Queen, but which their less magnificent ancestors found a great deal too large, and which they had either partly pulled down or else had abandoned for less magnificent but more comfortable homes.



Drayton House, Northamptonshire, was an interesting example of a manor house that had been enlarged, wings, numerous windows, and a gallery being added. In Deene Park, also in that county, was to be seen the strong Italian influence in the doorway, pilasters, corners, architraves, carving, amorini, and foliage, the Gothic windows and moulding. At Apethorpe Hall, too, was to be seen the arcade or loggia borrowed from India—a chilly stranded foreigner now filled in, as was the case with many other mansions. The lecturer emphasised the fact that magnificence was generally obtained at the sacrifice of what moderns were accustomed to prize even more highly, viz., convenience. Another quality which was often characteristic of houses of that period was a pedantic quaintness, which took the form of curious inscriptions and allegories, and which even affected the very form of the buildings themselves. The most remarkable examples were to be found in two small buildings erected by Sir Thomas Tresham, the father of the Tresham involved in the Gunpowder Plot. One of these, the famous Triangular Lodge at Rushton, was triangular on the plan, and was emblematic of the Trinity. The other, Lyveden New Building, a Greek cross on plan, set forth the doctrine of the Passion. Mr. Gotch showed an interesting plan, by John Thorpe, of Kirby Hall, which was a fine and characteristic example of symmetrical planning—the great hall with screen at the end, the dais where the master would dine, the family apartments, the suites of rooms where the Queen on one of her stately progresses, or the great nobles with their retinues, would be accommodated, arranged round a courtyard and the long gallery. Pictures were shown of Rushton, Canons Ashby, Apethorpe, Holdenby, Gayhurst, Deene, and the lecturer proceeded: "Even when perfectly new these fine houses, with their millioned windows, their great bays, their sharp gables, their long parapets, and their tall and graceful chimneys, must have been imposing. And now Time, with a hand that mellows good work before defacing it, has clothed them in his beautiful livery of lichen and moss, they impress one with a feeling of stateliness and dignity, befitting the lofty reputation of their builders. The family arms and badges, everywhere conspicuous, showed, however, that the possibility of a change of hands was never contemplated."

#### MANCHESTER BUILDING TRADES EMPLOYERS.

##### *Mr. G. Macfarlane on Builders' Burdens.*

The Manchester, Salford, and District Building Trades Employers' Association held its fourth annual dinner in the Midland Hotel, Manchester, on February 4th. Mr. James Higson, president of the association, was in the chair, and among those present were Mr. John Brooke, president Manchester Society of Architects; Mr. Paul Ogden, ex-president, and the hon. secretary of the society, Mr. J. Taylor.

"The Manchester Society of Architects" was proposed by Mr. George Macfarlane, who, touching upon the economic condition of the building trade in Manchester, said that it might be described by one terse word—"rotten." "I sometimes wonder," he said, "what architects in their quiet, meditative moments think about builders. They can only come to one conclusion—that they are the biggest set of fools under the sun. They eagerly undertake to carry out work—often under heavy penalties—with little or no prospect of profit, almost breaking their necks to get hold of it.

They then spend their time and strength for nought; and when squaring-up day comes they cry their eyes out because they have lost so much money on the job. You cannot expect profit at the end of a job if you have not made provision for it at the beginning. The excuse for behaving in this silly fashion is that "everybody does it; everybody's doing it." Well, the time has come for somebody to cry "Halt!" The history of the building trade in Manchester during the last five or six years has not been exhilarating reading. No town or district has suffered more than we have from most of the largest and best building firms falling out of the trade through stress of circumstances. Can nothing be done to save the remnant? If the present condition of things goes on nothing short of a miracle can prevent others being pushed over the precipice from this mad rush of blind infatuation. How can the cloud be lifted? How can we get back into the sun? I am afraid we cannot get out of our present trouble except we have the generous help and assistance of our architects. We feel that they can do much by their advice to clients and their personal influence to stop this 'rot' that has been ruining our trade for years. It is distinctly adverse to architects that builders should be impoverished. Instead of accepting the ridiculously low tenders that they get, my advice would be, burn them and give honest men a chance. I believe architects would be willing to assist builders in obtaining a better price for their work than they have hitherto been getting if properly approached.

"The builder is sadly handicapped by State burdens. Insurance under the Workmen's Compensation Act began at 6s. or 7s. per £100 of wages, it is now over 30s. The Health Insurance and Unemployment Acts have now come along, putting more weight on our shoulders. Workmen's wages have also increased; yet, in spite of all these additional expenses, we are not getting so much for our work as builders were getting a hundred years ago. The slackness in the building trade is no doubt to blame for a good deal of our suffering, under which architects are groaning in common with ourselves; but something can surely be done to mitigate the fierce competition that now prevails. It is both senseless and ruinous."

Mr. John Brooke, president of the Manchester Society of Architects, in reply endorsed some remarks by Mr. Macfarlane regarding the good spirit existing between the two classes. Mr. Brooke wished he had a panacea for the evils referred to by Mr. Macfarlane. They were, however, passing through a curious cycle of affairs, and what would be the end of it he did not know. But they of the middle classes were the chief sufferers in what was taking place. There were many hardships in connection with the building trade, and a curious thing about the present dearth of work was that there were less unemployed in that trade than any other. He understood that to some extent this was to be attributed to the large number of men that had emigrated.

Mr. Paul Ogden, who also replied, said that many of their joint difficulties would be got over if builders and architects met together in consultation three or four times a year. In this regard he thought there should be some regulations regarding the taking out of quantities.

Mr. Frank Woods proposed "The Manchester, Salford, and District Building Trades Employers' Association," to which Mr. Higson responded. Mr. Higson said

the pride they had in their trade some years ago had nearly gone, owing to the bringing in of the dishonest contractor, who got a job at a price at which no one on earth could execute it at a profit. He was delighted with the remark of Mr. Ogden that the architects should meet them oftener in conference, and believed much good would result from such meetings. Mr. Higson added that, notwithstanding the increased burdens on their trade, unlike other manufacturers they had not increased their prices. It was, however, time they adopted such a policy.

## LEGAL.

### *A Claim for Extras.*

In the Official Referee's Court, Mr. Muir Mackenzie heard the case of Emery v. Wimlett, in which Mr. G. Emery, builder, of Aston, Birmingham, sued Mr. Arthur William Wimlett, of Stratford-on-Avon, for £118 17s. 6d., alleged to be due on a building contract—i.e., £30 12s. 6d. on the original contract, and £88 5s. on a claim for extras. The work consisted in converting three cottages into a restaurant, and the price agreed upon was £280 7s. 6d., but the plaintiff's case was that, having done extra work upon the instructions of the architects, he was refused payment for it, the architects declining to certify for it. Plaintiff thereupon ceased work.—Defendant pleaded that the extras claimed were excessive and unreasonable, and that defendant was not entitled to any payments beyond those specified in the contract, which was "lump sum and entire" for the work specified. It was further contended that by abandoning the work plaintiff had forfeited all claims; and defendant counter-claimed £58 16s. 10d. for damages alleged to have been sustained in consequence of the abandonment. Having heard the evidence and the speeches of counsel on both sides, the Official Referee said he considered that although plaintiff was not entitled to any extras, he "thought it safer to allow him £7 10s." The abandonment of the contract could not be justified. There would be judgment for the defendant on the claim, and to him £9 would be awarded on the counterclaim.

## NEW MUNICIPAL WORKS.

The Local Government Board have decided to hold, or have recently held, as the respective dates may indicate, inquiries into proposed expenditure by public bodies as follows: Water Supply—St. Neots, Caxton, and Arrington and Rural District Councils, £6,662, for various localities (February 12th); Exmouth Urban District Council, £1,200 (February 13th). Street Improvements, Public Walks, etc.—Stafford Borough Council, £10,000 (February 11th). Sewerage, Drainage, and Sewage Disposal—Southport Borough Council, £60,000 (February 11th); Mexborough Urban District Council, £7,370 (February 12th); Martley Rural District Council, £4,000, for North Hallow (February 14th). Various—Maidstone Burial Board, £3,000, for burial ground extension (February 10th); Wanstead Urban District Council, £1,250, for fire station; Hove Borough Council, £2,480, for two underground conveniences (February 11th); Birmingham City Council, £7,500, for reconstruction of two bridges; Glastonbury Borough Council, £4,295, for gas undertaking (February 12th); Scarborough Borough Council, £4,039, for lavatories, shelters, etc. (February 13th).



## TRADE AND CRAFT.

### *Presentation to Mr. H. H. Martyn, of Cheltenham.*

Nearly two hundred of the Cheltenham employees of the firm of Messrs. H. H. Martyn and Co., Ltd., decorators, Sunningend Works, Cheltenham, dined with the heads of the firm at the King's Hall, Cheltenham, on February 1st. Mr. H. H. Martyn, founder of the firm and chairman of directors, was in the chair, and the Mayor of Cheltenham (Mr. J. T. Agg-Gardner, M.P.), was present. The toast of "The Mayor and Corporation" having been proposed by Mr. Charles Fisher and responded to by the Mayor, Mr. D. Longdon proposed "The Firm," joining with the toast the name of Mr. H. H. Martyn and Mr. A. W. Martyn. To some of them, he said, Mr. H. H. Martyn was more like a father than an employer, and they had prepared a surprise for him in the shape of an address, handsomely illuminated by Mr. A. R. Pigott, and a silver tea and coffee set, which would be handed to him on behalf of the employees as an expression of their affectionate regard. The address included this passage: "During the period of forty years you have consistently devoted yourself to the highest standard of decorative art."

Mr. Martyn, in reply, said that there was an affection in his heart for every man and boy in the firm's employ. Some of them had been with the firm all their working lives; son had followed father, and they were expecting the grandsons of some of the oldest employees to come into the works before very long.

In proposing the toast of "The Employees," Mr. A. W. Martyn said that the firm were doing good work on the new town-hall at Johannesburg, and the law courts at Capetown; and inquiries lately received from Canada referred to a total of upwards of £100,000 worth of work.

### *Carron Electric Cooking and Heating Appliances.*

While cleanliness and control—the latter term including convenience and efficiency—afford ample justification for the great popularity of electric appliances for heating and cooking, the neat, not to say artistic, appearance which such apparatus readily assumes is no doubt often a determining factor in the choice of the heating medium. The appliances illustrated in a booklet which has just been issued by the Carron Company, of Carron, Stirlingshire, are, as a rule, of elegant design. Those for cooking are commendably plain as to pattern, although of excellent shapes and proportions; but the heating apparatus, being destined for a less markedly utilitarian environment than that of the kitchen, is designed decoratively in many styles of ornamentation, and in various materials. The cooking ranges have been designed after exhaustive scientific and practical experiments to determine the best method of applying electrical energy for distributing heat in the most effective manner for cooking, and loss of heat through outward radiation has been reduced to a minimum, and the heating elements have been so arranged that they may be easily renewed without returning the range to the makers. Hotplates and oven elements are each provided with three heats, so that the temperature can be quickly raised, and afterwards maintained at a lesser degree with the minimum consumption of current. Besides the cookers, several accessories, such as grills and hot closets, combined

toaster and hot-plate, urn and water boiler, are listed. Carron convectors for the heating of apartments are portable, and, like the radiators, are invariably of pleasing design, in black and copper, all copper, or all brass finish, with copper reflector back; the cheapest form having fine cast-iron front, Berlin-blackened and polished copper reflector, with three powerful heating lamps, which can be used singly or all together as desired.

### *Reinforced Concrete Doors.*

In its application to steel doors a further use for reinforced concrete has been discovered. Messrs. Chubb and Son's Lock and Safe Co., Ltd., now manufacture fire-resisting doors in a solid slab (2 in. thick) of reinforced concrete, covered with steel plates of a special construction, which has just been patented. The principle is applied to various types of doors, sections of which, together with dimensions, weights, and prices, are given in a pamphlet which Messrs. Chubb and Son have recently issued. The doors are formed of two steel plates made to interlock in such a way that the interlocking pieces and the fastening rods inside between the two plates form the reinforcing members of the concrete filling. The concrete is put in from the open ends, which are then closed by end plates provided with inturned and twisted pieces embedded in the concrete. This new construction has withstood the severest fire tests with the most satisfactory results. Full particulars may be had on application to Messrs. Chubb and Son.

### *Graham Improved Electric Lifts.*

A pamphlet describing and illustrating the Graham improved electric lifts has been issued by Messrs. Scholey and Co., Ltd., Lift Department, 151, Queen Victoria Street, E.C., who, by means of copious illustration and lucid description, put the reader in possession of all the available data with regard to the mechanism of these lifts, views of actual installations being supplemented with diagrams which, with the utmost clearness, show all the working parts. An interesting account of lifts in general, their various types and applications, is followed by technical notes from which a full understanding of the constructive details may be derived, and any architect who is at the pains to read this instructive pamphlet attentively will add very considerably to his stock of useful knowledge.

### *Waterproofing Concrete and Cement-Mortar.*

The serious doubts that were at one time entertained as to the bare possibility of rendering cement waterproof have been long since dispelled. What is more, the responsible architect or engineer need no longer be at the pains to find out for himself, by laborious experiment, the most effectual means of waterproofing. For this purpose there are ready to his hand certain proprietary articles upon whose efficacy he can fully depend. One of these is Ceresit, the application of which is exceedingly simple, as may be seen from the directions issued by the vendors. Whether the material with which it is mixed be concrete or cement-mortar, the process is equally simple. All that it involves is the dissolving of Ceresit in water, and the use of the resultant mixture instead of water in mixing the concrete or the cement-mortar. The British Ceresit Waterproofing Co., Ltd., 68, Victoria Street, have issued a series of leaflets in

which are given full particulars of the mixtures for various services, and each leaflet is illustrated with a photographic view of some important structure on which their specific has been successfully employed. These illustrations include a circular reservoir of reinforced concrete at Conisborough, containing about 680,000 gallons of water; a view of the Windsor station of the Canadian Pacific Railway at Montreal, the tunnels in which are waterproofed with Ceresit; East Cowes Reservoir, Isle of Wight; the new Liver Building at Liverpool, where the basements have been waterproofed with this material; the building of the Royal Society of Medicine, London, W. (basements); a woollen mill at Bradford (motor pit waterproofed); an isolation hospital near Gravesend, of which the weatherside walls are waterproofed with ¾-in. rendering; a swimming bath at Cheadle Hulme; and the General Post Office, Bombay, whose massive central dome is waterproofed with 1-in. rendering mixed with Ceresit.

### *Fibrous Plasterwork in Theatres.*

A new theatre, designed by Mr. Bertie Crewe, is now in course of erection at Redditch. The contract for the fibrous plaster and decorative work, together with the "Ferrocon" artificial stone front, has been entrusted to Messrs. John Tanner and Son, of Westminster. Apart from the above-mentioned building, Messrs. Tanner and Son were engaged during the past year upon six other theatres—the London Opera House, the New Princes' Theatre, London, the new Hippodrome, Newcastle-on-Tyne, the new Hippodrome, Aldershot, the new Grand Theatre, Pentre, Glamorgan, and His Majesty's Theatre, Manchester.

## PROJECTED NEW BUILDINGS.

### *Hospital Pavilion, Hulton.*

The Local Government Board has sanctioned the borrowing of £4,975 and £542 respectively for the provision at the Eastern Hospital, Hulton, of a pavilion for consumptive patients, and extension of the administrative block.

### *Children's Home, Largs.*

The Paisley Parish Council have now completed the plans for the new home which they purpose erecting in Moorburn Street, Largs. The home, in which accommodation is to be provided for thirty-six children, is to be a two-storey building in brick and rough cast. On the ground floor will be situated the store, kitchen, matron's room, sitting room, and bedroom, with a nurse's apartment, a reception room for children, a playroom 22 ft. by 22 ft., and a large dining room. A glass-roofed verandah to afford the children shelter in bad weather is to be placed at the back of the building. The upper floor is to be entirely devoted to sleeping accommodation, with bath-rooms and dressing-rooms for both sexes. It is stated that the building is in advance of anything of its kind in Scotland.

### *Pavilion, Boscombe Pier.*

The Town Council have appointed a committee to report on a scheme prepared by the borough surveyor to erect a pavilion at the shore end of Boscombe Pier, at a cost of £4,000.

### *Town Bridge, Boston, Lincs.*

The Boston Town Council have decided to borrow £4,700 for the re-construction of the Town Bridge, towards which the Holland County Council is contributing £2,000.



## NEWS ITEMS.

*Change of Address.*

Mr. Guilford W. Dudley, architect, has removed his offices to No. 46, New Bond Street, W. (telephone, 2733 Mayfair).

*A Petition in Respect of the New Delhi.*

A petition signed by a large number of persons of distinction in arts, letters, science, religion, commerce, and public life, urging the desirability of the employment of Indian master builders and craftsmen in the construction of the new City of Delhi, was presented to Lord Crewe last week.

*Proposed New Building for the Crown Agents for the Colonies.*

Drawings have been submitted to the London County Council for the building which is to be erected for the Crown Agents for the Colonies on the corner site of Millbank and Wood Street, for which the Council was paid £102,000. "The elevation will be built in Portland stone, and the proposed design is one which we have," says the Improvements Committee, "no hesitation in recommending the Council to approve."

*A Borough Architect for Swansea.*

Swansea Parliamentary and General Purposes Committee, at its meeting last week, reported the receipt of a communication from the Society of Architects complaining that the advertisement for a borough architect precluded members of that society from applying by stipulating that applicants must be either Fellows or Associates of the R.I.B.A., and that this cast a slur on the Society of Architects. The committee disclaimed any intention to insult the Society of Architects, and instructed the Town Clerk so to alter the advertisement as to make it apply to members of the society; and also to extend the time during which applications can be received to February 25th.

*New Fire Station for Dublin.*

A new district fire station, Thomas Street, Dublin, which was opened last week, has a frontage of 74 ft. and a depth of 134 ft. The station fronting on Thomas Street is designed solely for motor traction, and has on the ground floor an engine room 27 ft. wide by 36 ft. in depth, with two exits. The frontage is of classic design with five arched openings, all of finely chiselled and rubbed brown sandstone from Mount Charles quarries. The entrance is boldly treated, with fluted pilasters and heavily moulded entablatures. The total cost of the building, including special fittings, has been £7,800. The plans were prepared and the work executed under the supervision of Mr. Charles J. MacCarthy, M.R.I.A., City Architect.

*Alterations at New Street Station, Birmingham.*

The construction of the additional bridge to cross the New Street Station, Birmingham, will be started shortly. The new bridge is to run parallel with the existing one from Stephenson Place to Station Street, and will be approached by a subway, to start outside the station in Stephenson Place. The new crossing will permit the present bridge to be reserved for railway purposes. The cost of the work will be about £12,000. It is also proposed to enlarge the Queen's Hotel at the entrance to the station, and to reconstruct the station offices, booking halls, and other buildings, which will bring the total cost up to nearly £100,000. The platform alterations will enable an additional line to be provided for local trains.

*An Ancient Fresco Discovered.*

A piece of sixteenth-century fresco has lately been uncovered by workmen engaged in stripping the interior, preparatory to pulling down, of Monastery House, Turret Lane, Ipswich. The fresco was hidden behind modern wallpaper, Georgian paneling, and still earlier architectural work. The original structure is stated by experts who have examined it to consist of what is known as wattle-and-daub—a species of primitive plaster work, used prior to the days of lath-and-plaster, held together by oak studs 18 in. apart. The pattern is described as a bold freehand design, suggestive of the hand of an Italian workman, of whom there were many in this country during the Tudor period. Mr. Parkington has presented this specimen of ancient workmanship to the Ipswich Museum Committee, and it will shortly be transferred by experienced workmen to a suitable position in Christchurch Mansion, an Elizabethan house in Christchurch Park, used as a public museum. The room in which the fresco work was found has Tudor fireplaces at either end, and lead casements with wrought iron fastenings.

*New Parish Rooms, Westbourne Park, W.*

New parochial rooms for the parish of S. Stephen, Westbourne Park, W., which were opened on January 18th by Bishop Neligan, have been formed in the basement under the newer portion of the schools. The new rooms—one to be used as a young men's institute, the other for parish meetings, etc.—are respectively 24 ft. by 24 ft. and 24 ft. by 30 ft. The vicar states that "the architect has done his work very skilfully and is to be congratulated on the very satisfactory result obtained. Under his direction the dark, despised basement, which was thought by many persons to be fit for nothing but a general storeroom, has been transformed into a cheerful, comfortable place, which will be of great service to the parish." The architect is Mr. Arthur T. Bolton, F.R.I.B.A., and the builders are Messrs. Collev and Sons; while other contractors were: Stuart Granolithic Co., concrete stairs and passage way; Dent and Hellyer, heating work; Henry Hope and Sons, Ltd., steel casements; Messrs. Turpin, of Bayswater, wood-block floors; Adamsez, sanitary fittings.

*Hull's £2,000,000 Dock.*

The new deep-water dock which is being built at Hull jointly by the North-Eastern and Hull and Barnsley Railway Companies is fast nearing completion, and water will be admitted in the course of the next three or four months. The dock as now excavated has fifty-four acres of water space, and is therefore larger than the New King's Dock at Immingham, and its equipment will be such as to justify its claims to be the finest dock on the East Coast. The lock pit has a length of 750 ft. and a width of 85 ft., with three sets of gates dividing it into two pens of 500 ft. and 250 ft., and has a minimum depth of 39 ft. of water. All the quays are practically completed, only a little ballasting remaining to be done in some parts, while the extensive railway sidings and approaches connecting the dock with the systems of the North-Eastern and Hull and Barnsley are all in readiness. The foundations for the grain silo, which, with accommodation for 50,000 tons of wheat, will probably be one of the largest in the world, are to be commenced shortly. The dock has been seven years in building, and its total cost will be nearly two millions sterling.

## OBITUARY.

*Mr. George Page.*

Mr. George Page, builder, of Buckden, Huntingdon, who died on October 21st last, left estate which has been valued at £36,248 gross.

*Mr. Arthur Huntley, M.S.A.*

Mr. Arthur Huntley, M.S.A., whose death in his fifty-fifth year is announced, had been for more than twenty years a member of the firm of Tucker and Huntley, architects, of Buckingham Street, Strand, W.C.

*Dr. J. F. J. Sykes.*

Dr. J. F. J. Sykes, M.D., D.Sc., who has just died, in his sixtieth year, after an operation for peritonitis, had been for twenty-eight years medical officer of health for St. Pancras, and had written many valuable papers and reports on housing, hygiene, and similar subjects.

## COMING EVENTS.

## Wednesday, February 12.

Edinburgh Architectural Association.—Mr. David T. Paterson on "Building Stone."

Manchester Society of Architects.—Paper by Mr. J. Alfred Gotch, F.S.A., F.R.I.B.A.

Polytechnic, Regent Street, W.—Mr. Angus Walbrook on "Leadless Paints." 7.30

## Thursday, February 13.

Society of Architects.—Mr. J. B. Fulton, A.R.I.B.A., on "The Renaissance in Spain," at 8 p.m.

Sheffield Society of Architects and Surveyors.—Mr. S. Wells, F.R.G.S., on "On the Edge of the Orient—Dalmatia and Montenegro."

Leeds and Yorkshire Architectural Society.—Mr. W. S. Purchon, A.R.I.B.A., on "Some Architectural Problems."

Northern Architectural Association.—Mr. J. Alfred Gotch, F.S.A., F.R.I.B.A., on "The Original Drawings for the Palace at Whitehall Attributed to Inigo Jones."

Concrete Institute.—Mr. S. Bylander on "Three Steel-Frame Structures in London," at 7.30 p.m.

## Friday, February 14.

Leicester and Leicestershire Society of Architects.—Mr. George Hubbard, F.R.I.B.A., on "Architecture on the Eastern Side of the Adriatic."

Royal Sanitary Institute (Chadwick Public Lectures).—Mr. H. Percy Boulnois, M.Inst.C.E., on "Hygiene of the Home." 8.15.

## Monday, February 17.

Royal Institute of British Architects.—Mr. A. Saxon Snell, F.R.I.B.A., and Mr. Wm. Milburn, A.R.I.B.A., on "Modern Hospitals," at 8 p.m.

Institute of Sanitary Engineers.—Mr. A. J. Martin, M.Inst.C.E., on "Sewage Purification," at 8 p.m.

British Constitution Association.—Discussion on Building By-laws, to be opened by Mr. C. F. A. Voysey, 11, Tothill Street, Westminster, at 4.15 p.m.

Liverpool Architectural Society.—Mr. Percy Morris, A.R.I.B.A., on "Some Points in School Planning."

## Thursday, February 20.

Architectural Association Camera, Sketch, and Debate Club.—Miss Gertrude Bell on "To Baghdad through the Syrian Desert," at 8 p.m.



THE  
ARCHITECTS' & BUILDERS'  
JOURNAL.

Wednesday, February 19, 1913.

Volume XXXVII. No. 945.

No. 21.



*(From Pinakothek)*



MONUMENT TO THE GLORY OF THE AMERICAN NATION. BY C.-D. DESPRADELLE.

(See page 205.)



# THE ARCHITECTS' & BUILDERS' JOURNAL.

FEBRUARY 19, 1913.

CAXTON HOUSE, WESTMINSTER.

VOLUME 37. No. 945.

## Official Town Planning and Expert Advice.

THE numerous town-planning inquiries held recently by the Local Government Board's inspector have emphasised the points which we made some months ago as to the architect's share in the preparation of schemes under the Act of 1909, and have also demonstrated the advisability of the employment of another class of experts. With no more than three schemes advanced to the final stage, it is as yet impossible to make any definite generalisations on results as to the æsthetic as distinct from the utilitarian value which town planning will possess, if it is confined to the hands of official engineers and surveyors; but, in spite of the difference between the status of the only two authorities who have produced final schemes—one a gigantic county borough and the other a small urban district—we feel that the Ruislip-Northwood scheme, which is largely the outcome of an open competition, shows the beneficial result of its outside architectural source as compared with the official engineering qualities of the two Birmingham schemes; and the former is infinitely more generous in its provision of open spaces. But, as we have said, however much we feel convinced, it is impossible to deduce generalisations from two examples.

With the case of the inquiries into the first stage of schemes under the Act it is different. Here we find a mass of material, and it seems clear that in many cases an authority has lost a chance of driving a point home through neglect of outside expert advice in preparation and skill in presentation. This is more frequently the case with small authorities, urban and rural, whose permanent staff is necessarily limited in each department to one official, and perhaps a junior assistant or two. These officials may feel quite confident before the inquiry that they have a simple case, but their position is impregnable, but an unexpected opposition which has taken the trouble to employ some first-rate expert advice, and has feed a barrister to present its case, dumfounds them. The opposition may grant the necessity of town planning, as happened at the Wirral Rural District inquiry on February 6th, but may question the ability of the Council's staff to carry through the scheme. If the official has called in no outside expert help, has had no experience himself beyond his present scheme, and has attended no courses of instruction (not even a summer school)—is, in fact, an amateur town-planner—he is apt to cut a poor figure, and frequently he fails to make as much as he might out of what competence he possesses through lack of skill and use in debate.

The last thing we should like to see would be town-planning procedure overrun with legal subtleties; and it is greatly to the credit of the Local Government Board that they have appointed as inspector Mr. Thomas Adams, who is intent on the thing itself rather than on the machinery to work it; under his guidance there is no fear of these inquiries degenerating into arenas for the display of dialectic gymnastics, or for tripping up unsuspecting witnesses. But there is no

doubt that a barrister well versed in the law and procedure of town-planning is able to put the case and to sustain cross-examination in a way that the clerk or solicitor to the Council cannot. At the same time we must warn barristers in general that they cannot undertake a town-planning brief without some considerable study. We have heard learned counsel enunciating the sorriest commonplaces for the benefit of the inspector, under the impression apparently that they were first-hand discoveries, and failing to take a hint through sheer inability to comprehend what was meant. For example, the other day a barrister, after attempting to demonstrate that an official had had insufficient experience and that his Council were inefficiently equipped to tackle a large scheme, could only instance in favour the better claims of the larger authority which he represented that they were purveyors of gas and trams to the lesser—a high warrant of town-planning ability! No, neither barristers nor architects, however able, can become town-planning experts on the spur of the moment.

In two recent inquiries, the Stockport Corporation and the Wirral Rural District Council, a point which has frequently lurked in the background suddenly sprang out into prominence and formed the chief basis of opposition; neither the advisability of town-planning the area, nor yet its actual extent, was disputed, but the question as to who was the right authority to deal with it was the whole subject of debate. In the former case the adjoining Urban District of Bramhall, aggrieved by Stockport's threat to turn a prized country lane into a main traffic road, insisted on the right to town plan itself, and in the latter case Birkenhead declared that its outskirts, though technically in the rural district, were geographically its own offspring, and as such it should have a say in their up-bringing. Both cases for the opposition were ably presented by barristers; the result at Stockport was an informal conference after the inquiry, under the guidance of the inspector, at which the larger authority agreed to drop the area included from the Rural District on the understanding that the latter undertook to initiate a scheme themselves within three months, and in co-operation with Stockport. The result at Birkenhead has not yet been announced, but there could be no doubt as to the value to the borough of the lucid exposition of their case.

There are also signs of the employment of outside architectural advice in the early stages of a scheme which give us some cause to hope that this will become the regular practice. In several cases a preliminary competition has been promoted, generally by some large-minded individual, but with the full agreement of the authority; Halifax, Oldham, and Ellesmere Port are trying this method of procuring outside assistance, and the Hale Urban District Council inaugurated a competition itself; the Woolton Council have called in two experts to prepare their scheme, and the Wirral Council have secured the advice of an architectural society. There can be no implication of weakness or insufficiency of the local surveyor in calling in



this additional assistance; he will find that a town-planning scheme adds quite enough to his labours in the preparation of data for the experts to work upon, such as thoroughly contoured plans, traffic and population statistics, and in the draughting of the legal maps, without allowing him time to attend courses or to instruct himself in a subject which is outside his routine work and which is as subtle as architecture and as technical as engineering. In many cases it will also be advisable to engage a temporary assistant who has made a special study of town-planning, and whose presence on the staff is a guarantee that a scheme has not been embarked upon lightly, or for some ulterior motive, such as the avoidance of incorporation, which is outside the intention of the Act. The inspector has also several times laid great emphasis on the danger of protracted preparation of a scheme through lack of qualified assistance in the office of the local authority. A competition, or the report and plan of an expert, followed up by the employment of a temporary assistant, is the course which we recommend for all but schemes of an elementary simplicity; only by such means can town-planning be saved from the danger of official stereotypism.

P. A.

#### The King Edward Memorial.

THE final decision as to the style and position of the King Edward Memorial has been made just as we anticipated, namely, an equestrian statue in the centre of the space between the Athenæum and United Service Clubs; the statue to Lord Napier, which at present occupies the site, to be transferred to one of the vacant pedestals in Trafalgar Square. Mr. Betram Mackennal has been commissioned to execute the bronze, and we may expect that he will give us a fine vigorous work. Mr. Lutyens's attention will be confined to the pedestal, which is to be of granite; and in his hands we may be sure of being spared that highly-polished surface which the "monumental sculptor" considers the acme of finish for such subjects. Polished granite has, indeed, one of the most unattractive surfaces it is possible to imagine, especially when incorporated in a wall. It may be necessary to provide such a surface in certain cases—as for that portion of the outside of theatres and other places of amusement where queues are the rule, and the rubbing of people's clothes causes unsightly marks on a rough porous surface—but for pedestals to memorial figures the treatment is wholly unnecessary. Even in so inspiring a place as Parliament Square we can see how much better Canning looks on an unpolished grey granite pedestal than the other political heroes who stand bare-headed and frock-coated on their polished red granite bases.

#### Some Views on Art and Architecture.

A CORRESPONDENT sends us a report of a speech by the Lord Mayor of Norwich, delivered at the recent inauguration of a new art gallery at the Castle Museum, which displays so curious a mixture of good criticism and bad as to warrant a few comments in these columns. First we would express our entire agreement with the speaker in his endeavour to dissipate the popular idea that art is mainly concerned with paintings. He was expressing a very admirable view when he said that there might be just as much beauty in a door-knocker or a frying-pan as in the finest achievement of a great miniaturist. The familiar fact is of course that when every handicraftsman was an artist all things in a house were a delight to the eye. But when, turning to architecture, the Lord Mayor asked what had been done during the last fifty years to add to "the glories of the Elizabethan architecture of the two universities, or to the architecture of the Jacobean and Carolean country houses,"

we think he wandered into unknown depths, as may be judged by the following reply: "We had built the Albert Memorial, of which the less said the better; the Catholic Cathedral at Westminster, which was, perhaps, pretty good; the Government Offices between Charing Cross and Parliament Square; and one really fine thing, St. George's Hall, at Liverpool. Recent architectural achievements had been the façade of the South Kensington Museum, the Admiralty Arch at Charing Cross, and the Wesleyan building on the site of the old Aquarium, of which all that he could say was that the meanness of their design was only matched by the vulgarity of their details. Before the country allowed its architects to horrify the eye, it should compel them to pass an examination, showing that they had qualified in taste as well as in craftsmanship, for craftsmanship without taste was worse than useless." There is so much confusion of thought here that we will not attempt to unravel it, but we can assure the Lord Mayor that Bentley's great fabric of Westminster Cathedral is rather better than "pretty good," that St. George's Hall hardly comes within the field of view—Elmes's design having been made in 1836—and that the Wesleyan Hall is not mean and vulgar, but is acknowledged by architects to be a very fine contribution to modern architecture; while, in conclusion, we must confess our utter inability to conceive a scheme which regards examination as the touchstone of good taste.

#### Insurance Act Responsibilities.

A PERHAPS unsuspected liability under the Insurance Act was revealed in a case heard at the London Guildhall last week, when a builder's labourer sued his employer for damages alleged to have been sustained through the loss of insurance cards. The items claimed were—10s. for stamps, £12s. for loss of two weeks' wages incurred through inability to obtain employment because the cards could not be produced, and £2 loss of health insurance benefit—total, £5 2s. The cards had been sent by post but were not delivered to the labourer, perhaps because he had changed his address without notifying his employer of the fact. The alderman who tried the case awarded the plaintiff one week's wages and the cost of the summons, thus affirming the contention that an employer is liable for consequences contingent on the loss of insurance cards, and that he is responsible for the cards until he can prove delivery into the workmen's hands.

#### A Ghent Exhibit.

THE Government department which was recently established to look after the interests of home manufacturers by encouraging their representation at large exhibitions abroad have been doing good work in connection with the International Exhibition which is to be opened at Ghent at the end of April. From time to time we have received extended particulars of the buildings and lay-out of the exhibition which have been published in our columns, and to the information already given we have now to add that there is to be a very interesting exhibit of the trade and technical press of this country, housed in a large reading-room and library which is being decorated according to a scheme prepared by Mr. Frank Brangwyn, A.R.A. The bookcases will be of a light wood stained to a silvery grey and the walls above them will bear panels, in black and gold, which are now being executed in Mr. Brangwyn's studio in London. As this is the first time that such an exhibit of British trade papers has been got together, it is fitting that a special building should be prepared to receive them. We should like, however, to have been assured that an architect of ability had been associated with Mr. Brangwyn in the work.



## THE SMALL SUBURBAN HOUSE.

### A COMPETITION FOR PLANS.

AS briefly announced in our issue for last week, we propose to hold a competition for the planning of a semi-detached suburban house: the idea having been suggested to us by the following remarks made by "Ubique" under "Here and There" in our issue for January 29:

The planning of the small house, either in a row or semi-detached, is always a severe task, and it is made far more difficult by reason of an arrangement which seems to be a wilful persistence of make-believe that must surely have originated in Victorian days. Frequent are the references to the unused parlour, and its tomb-like aspect—a room very rarely entered, and never with any degree of pleasure; but in the ordinary middle-class suburban house things are very little better, for in most cases there are generally two sitting-rooms, one of which is almost unused; and the wastefulness of such an arrangement is the more apparent in a house where larger rooms are a pressing need. In many cases, where no servant is kept, the kitchen is used as a dining-room, and one of the sitting-rooms then becomes so much lumber. From this it may be premised that the ordinary plan is not adapted to the requirements of the suburban dweller; indeed, so far as the kitchen arrangements are concerned, it seems to me that the customary plan is fundamentally wrong. The kitchen, with its range, and the pokey little room called a scullery which adjoins it, should be got rid of, and in their place should be provided a kitchen-scullery, a little larger than about half the size of the average kitchen, fitted with a gas stove, an independent boiler (to supersede the unknown article which is somewhere at the back of the range), a dresser, a sink, and a cupboard. . . . In the small suburban house, if semi-detached, a very good arrangement would be to have one sitting-room—at the front, to put the entrance door at the side of the house, opening into a small square hall, with the stairs leading out of the end or at one side of it, to contrive a little space for cloaks and umbrellas off the hall, to provide a dining-room at the rear, with a kitchen-scullery and a larder adjoining, and the out-offices; while on the first floor would be two bedrooms, bathroom, w.c. and a box-room fitted with shelving and a linen cupboard, the latter heated from the boiler in the kitchen-scullery. I have seen some small houses planned somewhat on these lines, though still rendered uneconomical by the usual kitchen and scullery, and the superfluous sitting-room, and the result in actual working was far more satisfactory than what, for want of a better term, may be called the Victorian suburban plan. It is one of the deficiencies of the small house that the rooms are of such miserable dimensions—a deficiency which garden city experiments have increased rather than decreased. But in the revised plan outlined above it would be possible to have far larger rooms on an equal area, which would be an immense advantage. Moreover, the suggested arrangement would avoid that miserable feature of the small house—the tortuous passage from front door to kitchen, too narrow to have any effect, yet cutting off a possible extra width to the ground-floor rooms.

The idea set out in the foregoing extract from "Here and There" forms the basis of the competition: the object of which, briefly, is to evolve a plan for a small semi-detached house which shall meet the needs of hundreds of thousands of middle-class suburban dwellers who at present have to put up with the type of house usually provided by the speculative builder and the estate development company. It is in the hope of doing something to get this type of house superseded that we are instituting a competition among our readers, and at the outset we would state that it is our intention to circulate the winning plans as widely as possible, so that the greatest possibility of their adoption may be secured.

The premiums offered are as follows:

Design placed first, £5 5s.

Design placed second, £3 3s.

Design placed third, £2 2s.

Below are given the conditions of the competition, which we have endeavoured to render as free from unnecessary labour as possible:

#### Conditions.

1. The competition is for plans and section of a semi-detached suburban house intended to be occupied by a small middle-class household whose income does

not allow, or whose desire does not include, the keeping of a servant living within the house: it being understood that such outside help in domestic duties as may be required will be casual and temporary in character.

2. The house is intended to be one of a pair on a plot of ground having a width of 60 ft. from boundary to boundary, and set back 20 ft. from the frontage line. There will thus be a width of 30 ft. for each house.

3. The accommodation to be provided is as follows: Ground floor—sitting-room, dining-room, kitchen-scullery, larder, coals (at least two tons), space for coats, umbrellas, and bicycle or perambulator, and space for garden tools and oddments; first floor—three bedrooms, bathroom, w.c., and box-room with linen cupboard.

4. In the kitchen-scullery provision must be made for a table, dresser, cupboard, sink, gas stove and an independent hot-water boiler, the positions of all of which must be shown on the plan. (The gas stove and independent boiler are intended to take the place of the usual range for cooking purposes and hot-water supply.)

5. Of the three bedrooms, one must be a large room accommodating two twin beds, and each of the other two bedrooms must be large enough to take a bed 6 ft. 6 in. by 4 ft. The positions of the beds must be marked on the plans. Hanging cupboards in all three bedrooms are considered desirable.

6. The box-room must include a linen cupboard enclosing a cylinder heated from the boiler in the kitchen-scullery, and the position of this cupboard must be marked.

7. The direction in which all doors open must be shown.

8. The house is intended to be built in accordance with the usual Urban Model By-laws, with 9-in. walls, and should cost not more than £450 at 6d. per foot cube.

(It should be borne in mind by competitors that the object of the competition is to improve the type of house which is commercially possible under existing conditions, and any reduction in cost or width of frontage below the *maxima* above specified will be regarded as assisting that end, and taken into account in adjudicating.)

9. The drawings required are a ground-floor plan, first-floor plan, and section, all to the scale of  $\frac{1}{8}$  in. to the foot. The two plans are to be put side by side and are to be of the right-hand house of the pair. Roof lines should be dotted on the first-floor plan. The section is to be put below the plans. All drawings are to be in plain black and white, without wash or colour in any part, on ordinary drawing or tracing paper. The name and dimensions of each room are to be written in pencil only, no lettering of any sort being required on the drawings.

10. The name and address of the competitor must be written in ink at the bottom right-hand corner of each drawing.

11. Drawings are to be sent in by March 19th next, addressed to the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL, Caxton House, Westminster, who will adjudicate them—with the assistance of a well-known architect—and whose decision will be final.

12. The Proprietors of THE ARCHITECTS' AND BUILDERS' JOURNAL reserve the right to publish any of the drawings submitted in the competition in any form they may desire.



# SCHOOL EQUIPMENT: ITS INFLUENCE ON PLANNING.

BY ALAN E. MUNBY, M.A., F.R.I.B.A.

THE title of this article may appear to reverse the order of importance of plan and equipment as generally accepted, and, of course, in all too many cases the local conditions of site, aspect, and surroundings must govern the plan of any building in so large a degree that the effect of equipment on plan becomes small. Yet in schools where definite regulations as regards area of rooms, arrangement of desks, provisions for light, and so forth must be complied with, the fittings should always to a large extent influence the planning of the building.

The equipment of different types of schools is naturally not identical: the secondary school possesses features which are not present in the elementary school, and the special school differs from either, while a boarding school necessarily has elements absent from any day school. It is the purpose of this article to deal with the main equipment of elementary schools and secondary day schools, though naturally many of the points discussed will apply to schools of other types.

## *Arrangement of Departments.*

Although the general "lay out" of school buildings does not form part of this discussion, a few words on the arrangement of the departments may perhaps be permissible as bearing in some degree on equipment.

The accommodation generally required consists of a hall or halls, administration and staff rooms, classrooms, cloak-rooms and lavatories, and may include, in addition, rooms for art, science, manual training, cookery, laundry-work, and housewifery, a gymnasium and changing-room, fives courts, rifle range, a dining-hall, and suitable kitchens and caretaker's quarters, with which additional rooms this article will not attempt to deal.

The key to the plan is generally the position of the hall or halls nearly always required in schools. The type of plan making the hall a central feature, with classrooms leading out of it on all sides, formerly so generally adopted, seems to be giving way—more especially in the case of elementary schools—to types in which the hall, while accessible from other parts of the building, is itself isolated, which confers certain advantages in the matter of its independent use and the privacy of the class-rooms. Cloak-room and lavatories for scholars should obviously be near entrances and exits; administration rooms near the main entrance and grouped together; staff rooms distributed in the various departments, and placed, if possible, so as to allow supervision of scholars during times of recreation. Laundry, cookery, and housewifery rooms attended by girls may often form a separate wing, balancing science and manual training rooms on the boys' side, though in many cases these rooms must form part of the main building. The disposition of these rooms for additional subjects will be influenced by their projected use, as in some cases they have at times to accommodate students who are not ordinary day scholars.

As to latrine accommodation, the rule of the Board of Education is to keep this outside the building for all scholars in day schools; but though this may be desirable for boys, there seems to be no sufficient reason in these days of hygienic efficiency why such conveniences for girls should not be placed within the building in most cases.

## *Hall and Administration.*

No detailed comments are necessary upon the equipment of these rooms. The hall, being used for purposes of assembly, is usually provided with continuous seats without desks, and its total area, accord-

ing to the Board of Education's regulations, should be based on an allowance of 6 to 8 sq. ft. per head in secondary schools and  $3\frac{1}{2}$  to 4 sq. ft. per head in elementary schools, for the maximum accommodation required at one time. Rooms for administration consist of clerks' offices, sitting-rooms and board room and their equipment does not differ from that of similar rooms in ordinary buildings.

## *Classrooms.*

These rooms, on account of their number and use, are naturally the most important rooms in a school, and their arrangement and equipment require corresponding care.

The surfaces most suitable for floors and walls in classrooms are matters of considerable debate. Some form of solid floor is universally adopted in modern buildings, and this is generally covered by wood blocks, which, however, require more cleaning and offer more crevices than boards. In the writer's opinion the best floor yet known consists of tongued secret-nailed boards cut from quartered timber to obviate shelling, and fixed to lines of breeze concrete, forming part of the floor screeding; or, better, as it is difficult to control the quality of "breeze," a special burnt-clay aggregate concrete which will take nails. Such boarding must be well treated with bituminous mastic on the under side before being laid, in order to reduce the possibility of dry rot, and should be laid so that the main direction of its use is across and not along the boards. The junction with the walls should be a coved wood skirting, with a radius of about 3 in. to reduce the collection of dust. Patent floorings, such as those composed of sawdust and cement, should only be employed after considerable investigation, as these are very apt to contain free magnesium chloride, which is not only deliquescent, but has a destructive action on many metals.

As to walls, many advocates are found for glazed bricks. Highly glazed surfaces, however, have the disadvantage of condensing moisture in damp weather, and, when wet, readily collect dirt, which it is seldom convenient to remove as readily. In some schools in very poor quarters glazed bricks to dado height are undoubtedly desirable, but their appearance is not very pleasing, and their cost is considerable. On hygienic grounds, if one may judge from the trend of medical opinion, a painted dado of some hard plaster is preferable, and in most cases sufficiently durable. The walls above the dado should be plastered and distempered, preferably to a greyish-green tint.

With the increase of education and better average discipline in schools the provision of glazed screens between classrooms and corridors is losing favour, and, except when borrowed light is required, such screens—at least in secondary schools—are generally undesirable, as they tend to the distraction of the scholars and the transmission of sound, besides increasing the heating requirements of the rooms.

The tendency of modern education is in the direction of a decrease in the size of classes. In elementary schools rooms for fifty and sixty children are required, but in secondary schools seldom more than twenty-five or thirty are taught together, and some smaller rooms are always desirable. The Board of Education fix the minimum area of floor per scholar at 16 square feet (18 advocated) in secondary schools and at 10 square feet (9 for infants) in elementary schools. In the former single desks are usually installed, and in the latter dual (or sometimes continuous) desks are used. The desks must form a rectangular group and be sym-



metrically placed, with gangways (except with continuous desks) parallel to the window wall; hence the total number of places should be divisible by two factors—one the number of desks in a row, the other the number of rows.

Taking the case of the elementary school classroom with dual desks, it will be seen further that the number of places from window to wall must be divisible by two. Thus, calling a "row" each series of desks parallel to the window wall, a room for sixty will have five rows, each containing six dual desks (Fig. 1) or six rows of five desks (Fig. 2), and one for fifty, five rows of five desks (Fig. 3), while a room for forty-eight will contain four rows of six desks (Fig. 4). A diagram of a smaller room for forty is shown in Fig. 5.

Infants' dual desks are usually 3 ft. long, and the area per head in their classrooms is 9 square feet. A diagram showing how the dimensions of a classroom for sixty works out is given in Fig. 6. No raised staging for desks is now placed in infants' or any other classrooms, except for subjects requiring demonstration apparatus.

A study of these diagrams will show that the arrangement of the accommodation, on the basis of a given number of feet per head, makes not only a difference in the configuration of the room, but in economy of space. A room four desks wide is more economical than one five wide; hence a forty-eight classroom is more economical than a fifty room, though rooms for fifty are constantly laid down as a condition in school competitions. Such small difference in accommodation therefore greatly affects the plan, and a decrease in the number of rows (within limits soon reached by requirements of sight, sound, and supervision) is desirable on several grounds—(a) in a saving of area more or less wasted at the sides of the master's platform; (b) in admitting the necessary large window area without making the elevations suggest a factory; (c) in some cases in decreasing the height of the rooms necessary for efficient lighting; and (d) saving in constructional work.

In secondary schools the above considerations

generally apply except that the use of single desks increases the possible varieties of arrangement. Four, five, and six desks in five rows from window to wall give suitable rooms for twenty, twenty-five, and thirty respectively, with the same width of room in each case. A classroom for twenty-five is shown in Fig. 7 on the basis of 16 square feet per head, and adjoining it a room for thirty situated in a position often found necessary in practice, in which the door cannot be placed at the master's end of the room on account of the necessity for left-hand lighting to the desks. In such a case the single desks may be placed in pairs, with corresponding economy in gangway space giving room for a wide passage-way for the students to the end of the room (Fig. 8), while adjoining this is a room for thirty arranged in the ordinary way (Fig. 9).

Most rooms are 12 ft. in height, the minimum allowed by the Board of Education. Where the width of the room is greater than 20 ft., the height must be increased, and for a room of 24 ft. 8 in. wide (required in an elementary school for sixty scholars arranged as Fig. 1 or 3) it must be 14 ft. high. The actual necessity of such a height must largely depend on the aspect and external surroundings of the rooms. A classroom facing north in a narrow street should not be placed in the same category as one facing south in the open country.

The window area required is about one-fifth the floor area. This again is a matter upon which variation with aspect and surroundings seems desirable. Indeed, in some rooms this provision involves the use of such slender piers between the lights as to necessitate the use of stanchions to carry loads over.

Ample light is certainly essential, but a fixed ratio between floor and window area seems open to criticism. The distance from floor to the glass-line of the window is usually about 4 ft. When, however, the external surroundings are such that it can be made less (3 ft. 6 in. or even 3 ft.) the room gains much in cheerfulness.

Windows, of course, should run up to as near the ceiling as possible (a matter not unconnected with construction of floors above), and should always have transoms with top lights hung horizontally. Fig. 10

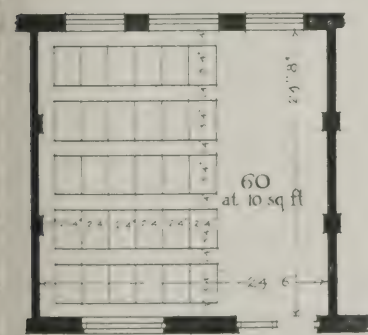


Fig 1

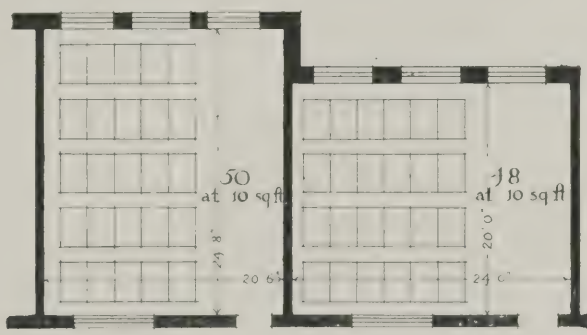


Fig 3

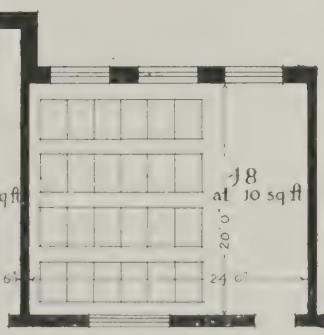


Fig 4

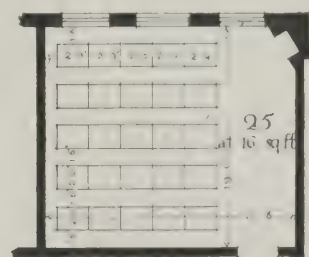


Fig 7

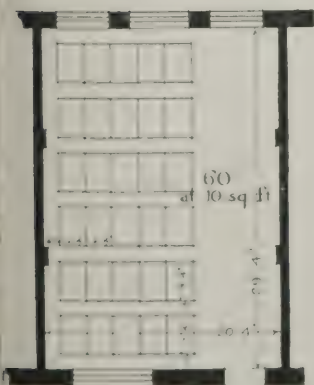


Fig 2

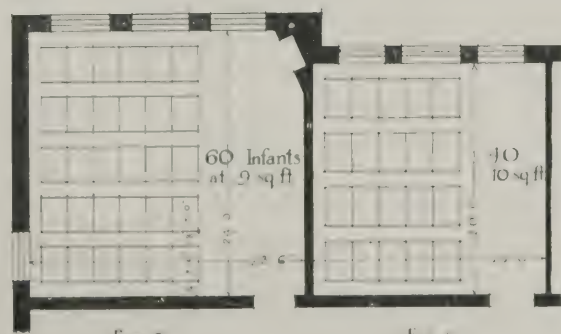


Fig 6

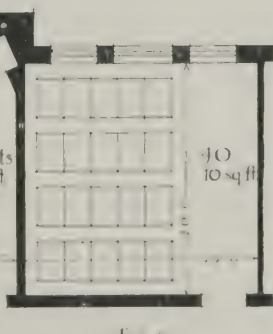


Fig 5

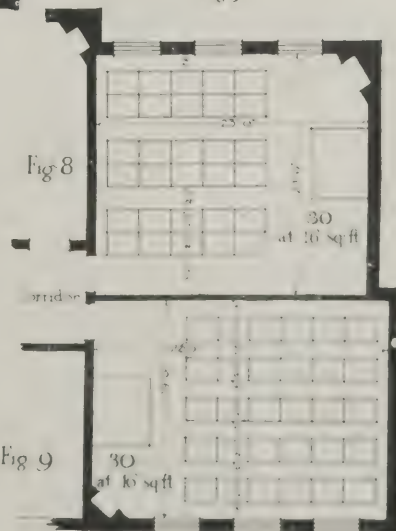


Fig 8

Fig 9

shows a section of a typical classroom taken through window and door.

There are a great many types of desks, and naturally the subject of instruction and mode of imparting it must have some bearing on the accommodation of the scholar in this respect. For general purposes a desk should have a slope of about 15 degrees and no ledge at the bottom, which would interfere with the hand in writing. Its bottom edge should be immediately over the edge of the seat, which is preferably fixed to iron standards (the latter keeping desk and seat together), and a slight hollowing out of the seat—bringing the support of the body largely on the fleshy part of the legs—adds considerably to the comfort of the scholar. Finally, the seat should have a back which should be almost vertical. Fig. 11 shows a typical section through a good desk and seat, but the moving parts should not exceed the necessities of use, for they will be found conducive to noise and trapped fingers.

#### *Cloak-rooms.*

These rooms should be well ventilated and liberally supplied with heat. They need not be lofty. Proximity to the main and playground entrances is essential, and at least two doors or, better, mere openings of ample dimensions, fitted with collapsible gates, are desirable to admit circulation and ready supervision.

The cloak racks should be spaced at least 4 ft. apart and be placed at right angles to the window wall to admit of good lighting down each avenue, and 4 ft. gangways should exist also at each end of these racks. The racks are usually built up out of galvanised iron pipe, with double hooks bolted on.

If the hooks are to have numbers, these should be so contrived as to be visible when the hooks are in use, and plates with numbers raised or in vitreous enamel should be used, as painted numbers soon get defaced. Great strength is required in these racks, which often get rough treatment, and it is wise to allow the vertical standards (which should be made from not less than  $1\frac{1}{2}$  in. pipe and not be much more than 5 ft. apart) to run from floor to ceiling and be secured to each by a large flange plate. The hooks are usually placed on two horizontal rails (piping slightly smaller than to standards) 12 in. apart on each rail, the hooks on one rail being over the centre of the space between two hooks on the rail below.

One or more hot pipes along each rack under the cloaks, but sufficiently above the floor to allow cleaning, are a great asset in wet weather. These pipes may sometimes be made part of the racks, and thus add to their rigidity. The expansion and contraction of the hot pipes, and the occasional necessity for repairs, however, render it better on the whole to keep the hot pipes separate.

Sometimes wire screens are placed in the racks to separate the two sides. The writer has so far not succeeded in finding any such screen the nature and fixing of which will resist the depredations of the average boy released from "durance vile." As a rule, therefore, they are best omitted. If separation is wanted, further rails of pipe can be run horizontally between the standards. Fig. 12 shows a plan of a typical cloak-room, and Fig. 13 a detail of the racks. Umbrellas have to be considered, and it is best to provide a separate rack with an open drain on or above the floor, with the proper outlet through the wall to a gully or other suitable escape, as the water accumulated may be at times considerable. Of course, the proper way of draining this most destructible protector from the weather is to place it handle downwards, partially opened, but the space involved makes this almost impossible in schools.

Sometimes lockers are required in cloakrooms, and since, if required at all, large numbers are usually needed, it is seldom that more than about one cubic

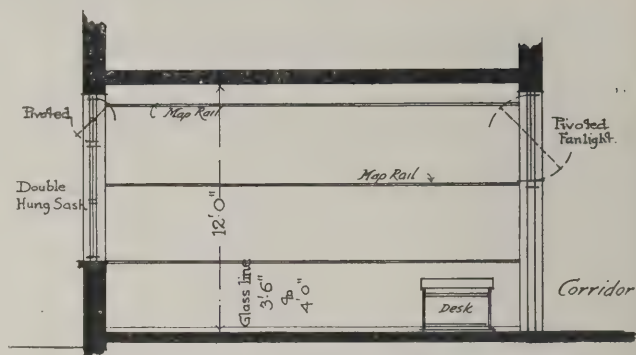
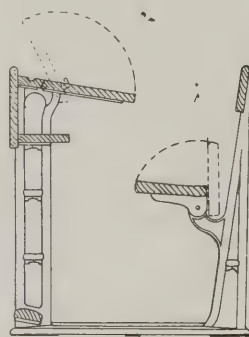


Fig. 10.



Dual Desk

Fig. 11.

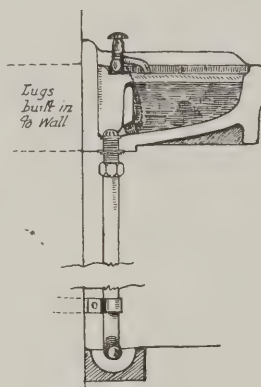


Fig. 15.

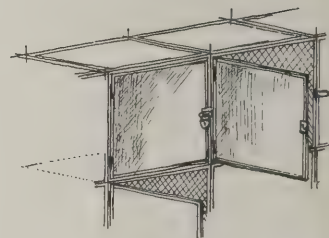


Fig. 14.

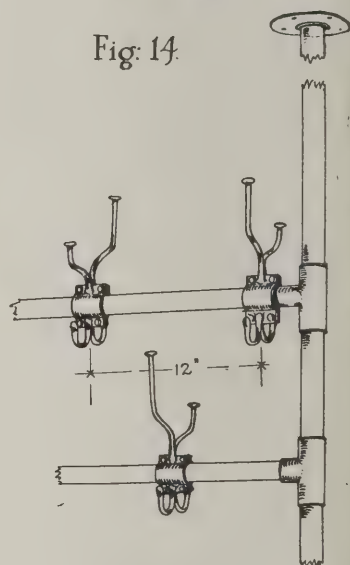
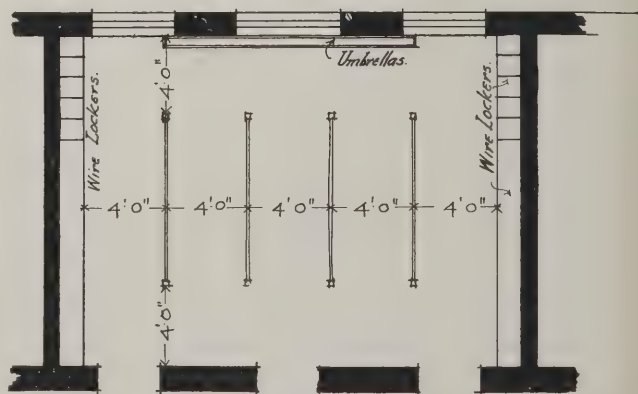


Fig. 13.



Corridor

Fig. 12.



oot of space is allotted to each scholar. Lockers built up in suitable groups from T- and angle-iron and separated by strong wire mesh are now commonly used and are illustrated in Fig. 14. It should be remembered, however, that his locker is the only shred of private property a boy usually has, and stamped steel in place of wire-covered doors will be appreciated and give a tidier appearance, while the retention of the wire divisions will still admit of the desirable escape of such livestock as he may wish to incarcerate. Very strong riveted hinges are necessary, and the doors should have hasps for padlocks. Padlocks have a great advantage in all school fittings used by the scholars. They can be provided by the scholars themselves, which deals with the difficulty of keys, and if a key is lost the padlock is easily filed off without damage to the fittings.

#### *Lavatories.*

Lavatories should preferably be separate rooms adjoining cloakrooms and should, like the latter, have asphalt floors and glazed brick dadoes. The basins should form continuous rows and be of thick glazed fireclay provided with carefully selected spring taps. The springs of such taps (made of phosphor bronze) require renewal every few years, and it should be ascertained that they are readily removable, without the necessity of sending the taps away.

The wastes to the basins should be of galvanised iron without traps, and should discharge into an open glazed channel in the floor which also forms a drain or washing down the whole room. This channel should be trapped at the external wall and discharge into a gully. Soap is rather a difficulty in a school, where it often plays the part of a missile rather than of an aid to ablution. There would seem to be an opening for some unbreakable form of soap dredger or vessel supplying soap solution. Fig. 15 gives a section through a lavatory basin showing the form of drainage referred to. The waste pipe, it should be noted, is secured to the wall by a holderbat.

#### *Latrines.*

The practice of placing all latrines for scholars outside the school building has already been commented upon. In secondary schools the placing of at least one or two closets for girls within the building, which will anyhow contain such convenience for the staff, does not seem open to any valid objection. The main accommodation for both sexes must no doubt be in general outside the building, but in the case of girls and infants approach thereto under cover is an arrangement to be aimed at.

Closets should be about 2 ft. 6 in. wide and separated by enamelled slate, glazed brick partitions, or glazed stoneware slabs. All are expensive, the first requiring a frame of channel iron, and a cheap and efficient substitute would be welcome; large slabs of salt-glazed ware, say 2 in. thick, with joints suitable for the inclusion of some light steel reinforcement, would make a good partition, and as they could easily be standardised should prove economical, could the ware maker overcome the difficulties of kiln warping. Partitions should finish a few inches short of floors to admit of ready cleaning. All closets should have floors also stopped about 6 in. short of floors. As to the apparatus, a strong bracket form built into the wall is the most sanitary, and although opinions differ on the question of flushing closets, a separate cistern and pull seems desirable in all schools, the children being taught, if necessary, that the use of such flushing cisterns is a matter of duty.

The flush pipe connecting cistern and apparatus should be galvanised iron, and its efficiency will be found to depend as much on the direction of its course, including its junction with the apparatus as upon its diameter.

The somewhat liberal allowance of the Board of Education for closets in schools is one for every fifteen girls for the first hundred, and one for every additional twenty-five, and for boys one for each twenty-five scholars. Urinals (one stall for every fifteen boys) should be of as simple a form of construction as possible. Some patterns in which the divisions are in one piece of glazed ware only about 2 in. thick are reasonable in price and economical in space. These divisions are often made higher than is necessary. Channels covered by gratings should be avoided apart from the necessary grating to the exit gully, which should be of brass or gunmetal. Urinals are best flushed automatically by a central cistern, and unless the regular cleaning of the flushing pipes is intended these are best made of galvanised iron and painted with some bituminous solution, which will withstand the attacks of uric acid and ammonia. In arranging the supplies for a latrine block it is always wise to first become conversant with the regulations of the water company, which sometimes demand a special service and meter for automatic flushes.

### R.I.B.A. PROBLEMS IN DESIGN.

THE design for a colonnaded screen which we reproduce on page 199 of this issue was one of those recently approved for Subject VI. (a) by the Board of Architectural Education. The author, Mr. Ernest Gee, was formerly a student at the Liverpool School of Architecture. The conditions stated that the screen was to be 100 ft. in length, joining two wings of a public building 60 ft. in height; with two carriage entrances through it. Shaded drawings were required to  $\frac{1}{4}$  in. scale, with 1 in. scale details.

### MODERN SMALL HOUSES.

WITH few exceptions, garden suburb houses are based on country cottage types, with a comparatively small amount of window space and an abnormal proportion of sloping roof. It is quite refreshing, therefore, to see the return to a Georgian type which Mr. Ronald P. Jones has so successfully essayed in the houses in Romford, illustrated on page 204 of this issue. There are four of these houses in a row, and, in order to introduce a little variety, the two centre houses are slightly advanced, while those at the ends have projecting bay windows facing the road. On the garden side, by reversing the plan of each alternate house, the adjoining drawing-rooms are brought together, and a broad garden space is formed between the kitchen wings. The houses are faced with reddish-brown bricks, and have wood cornices and door-hoods, the roofs being covered with green slates.

### MARLOW PLACE, GREAT MARLOW.

MARLOW PLACE, Great Marlow, which for some years past has been in the occupation of Mr. W. Niven, is chiefly remarkable as being an unaltered specimen of the smaller mansion of the first half of the eighteenth century. According to Sheahan's "History of Bucks," it was built in 1720 for George II. when Prince of Wales, but no authority is given for this statement. From a study of the building itself, Mr. Niven is inclined to fix the date approximately ten years later. No doubt an architect was employed, and the name of Hawkesmoor has been suggested. Many of the external details are unusual, particularly the rather ugly capitals in stone over the pilasters. The pilasters themselves are of the finest gauged brickwork. We reproduce on page 197 a detail of the entrance on the garden front.



## HERE AND THERE.

IN so limited a space as three pages it would seem a formidable task to compress six hundred years of architectural biography, but this I now propose to attempt. My intention, however, is not to discourse on dates and buildings, nor to indulge in any critical estimate of work done or projected, but to give some particulars which throw a little side-light on the figures of familiar British architects. Best of all would be an entirely personal record, but the necessary material is not available, first, because, in the case of architects of the past, there are very few of those most fascinating of books—memoirs and autobiographies; and, secondly, because, in the case of architects of the present, the gossip which makes some conversations so vastly entertaining cannot, for obvious reasons, be set down in these columns. Despite the limitations, however, it may not be unprofitable to gather together some unfamiliar facts and fancies about British architects from William of Wykeham to Norman Shaw.

Starting, then, with William of Wykeham (born at Wickham, near Fareham, Hampshire, in 1324), it may be pointed out that to call him "the first British architect of whom there is any adequate record" is to attribute technical abilities which he never possessed. It is true that he held the position of surveyor of royal castles under Edward III., but there is no evidence to show that he was the architect of Windsor or Queenborough. His duties were those of a supervisor, the real "architect" being a certain William de Winford, of whom, as with the builders of Winchester School and New College, Oxford—both founded by Wykeham—nothing is known. In later years the favoured bishop became more and more drawn into the royal service, until, as Froissart says, "everything was done through him, and without him nothing was done." He was, indeed, a clerical minister of the King, not an architect, and just as he himself caused to be cut on the walls of Windsor Castle, "*Hoc fecit Wykeham*," so we may take his happy answer to the King's complaint—that his meaning was not "Wykeham made this," but "*This made Wykeham*"—as an indication of the real character of his State service.

A jump of no less than 160 years has now to be made, for there is no record of any architect of note in this country from the reign of Henry IV. to the close of Mary's. Then we meet John Thorpe, a Londoner, whose reputation was established by the famous book of drawings that Horace Walpole discovered, which book is now in the Soane Museum. But here again it is not certain that the title "architect" can accurately be given. Kirby Hall and Holland House offer the best evidence of Thorpe's claim, but even in these cases the element of doubt enters. It should be remembered that most of the drawings in his book are not of buildings to be erected, but surveyor's drawings of finished buildings, and in view of this it is perhaps more correct to regard Thorpe as a surveyor-architect and draughtsman, standing midway between the old English builders who worked on traditional lines and the academic innovators of the seventeenth century, who really are the first to whom the term "architect," in anything like its modern sense, can properly be applied. The quaint fancy of the period of transition is well illustrated in the following lines appended to one plan in the celebrated book of drawings: "Thes 2 letters I and T, Joyned together as you see, is meant for a dwelling house for me.—John Thorpe."

Having now reached the end of the sixteenth century, we come upon Inigo Jones, another Londoner, son of a clothworker at Paul's Wharf. So much has

already been said about him that it is difficult to find anything that is not familiar, but it may be noted first that his name was the same as his father's, the spelling in the baptismal entry being "Enego Jones," which spelling is diversified in other records as Enygo, Enygoe, and Inygoe, and as Johnes and Johans. Two other personal items of interest are that he was never married, and that he was dyspeptic, as may be judged from the entry, in his copy of Palladio's "*Architettura*," of a prescription that "cured me of the sharp vomitings which I had thirty six years." Of his executed buildings we have to notice that the new chapel of Lincoln's Inn was the only one in which he used Gothic, and that the banqueting house worked out at nearly £6,000 more than the architect's estimate. It must have been with such thoughts that Inigo Jones walked about London in his later years and saw his two great schemes, for a palace and a cathedral, incomplete and partly mutilated. Depressed by the continuous attacks of rivals like Ben Jonson (whose bitterness is shown by his telling Charles, Prince of Wales, that "when he wanted words to express the greatest villain in the world, he would call him an Inigo"); worn by money troubles (he, as a Roman Catholic, having had to compound to Cromwell); and put out of service by the tragic disappearance of a Court for whose brilliant masques he had wrought with such enthusiasm, he finally died at Somerset House on June 21st, 1652, and, five days later, was buried in the church of St. Benet.

Of John Webb, henchman to his great uncle, I will recount only how he was promised the coveted post of Surveyor-General to the Crown, and how he failed to get it. Here Mr. Beresford Chancellor, in his most readable "*Lives of British Architects*," serves as a very handy commentator, and the account he gives will therefore condense and paraphrase. At the Restoration, Webb made formal application for the post in question, asserting that Charles I. had intended him to have the reversion of the office for which his long training and his duties as deputy-surveyor to Inigo Jones peculiarly fitted him: there were due to him, moreover, arrears of salary, for prompt payments were not then the vogue, as may be judged from the fact that the bill for the banqueting house in Whitehall was not settled until eleven years after the completion of the work! Just at this time, however, there was a rush of applicants for every office in the gift of the Crown, and so it came about that Sir John Denham, who had done more for Charles than Webb had, was given the post of Surveyor-General. Now Sir John, as Webb pointed out in a memorial to the King, might have known something about the theory of architecture, but he had no practical knowledge in recognition of which fact, or because Charles II. felt some reward was due, Webb was retained in his position as assistant, with the grant of the reversion of the chief post on Denham's death. Sir John died in March, 1669, and Webb naturally expected to step into his shoes, but now "a certain Mr. Wren" came between him and promotion, and for a second time his hopes were dashed to the ground. Webb sent up a memorial, in which he pointed out that Wren was "by far his inferior"—which was perfectly true as Wren at this time, though a marvellous mathematician and distinguished scientist, had very little knowledge of architecture—but expressed his willingness to instruct him in the course of the office of works if he were joined with him in the patent. The memorial was not granted. Thereupon Webb retired to his native county—Somerset—and, having there built himself a house, spent the few remaining years of his life as a private gentleman. UBIQUE.





*Photo: E. Dockree.*

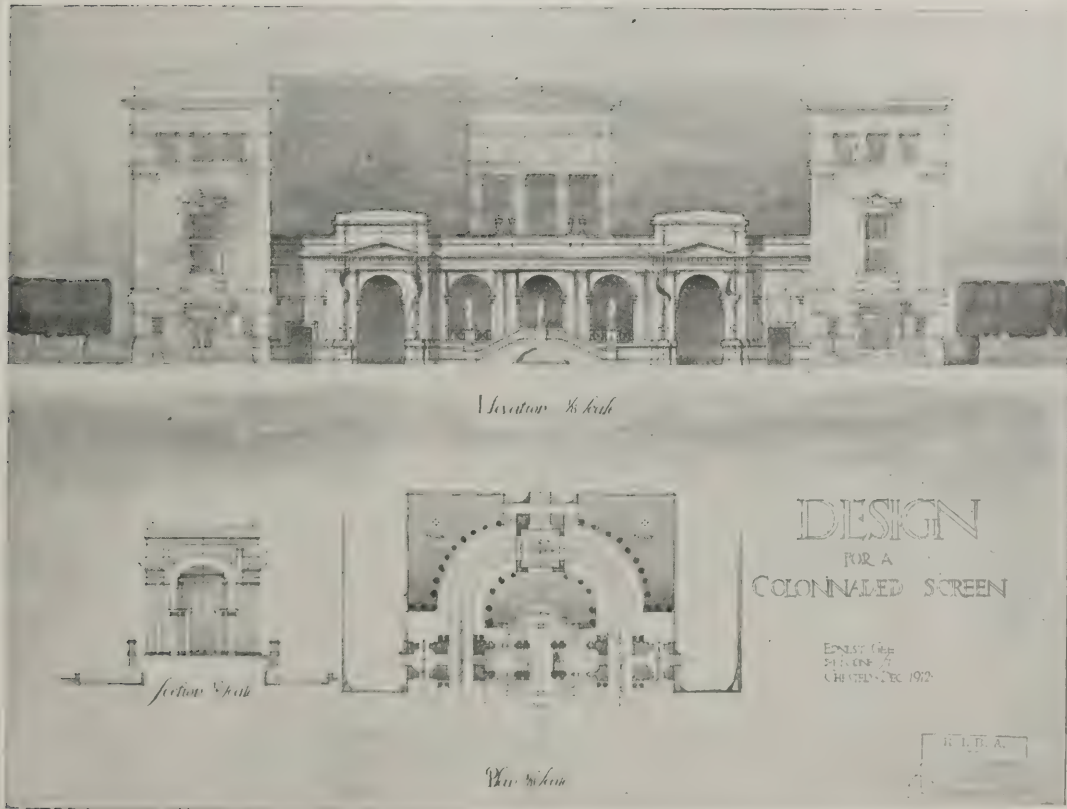
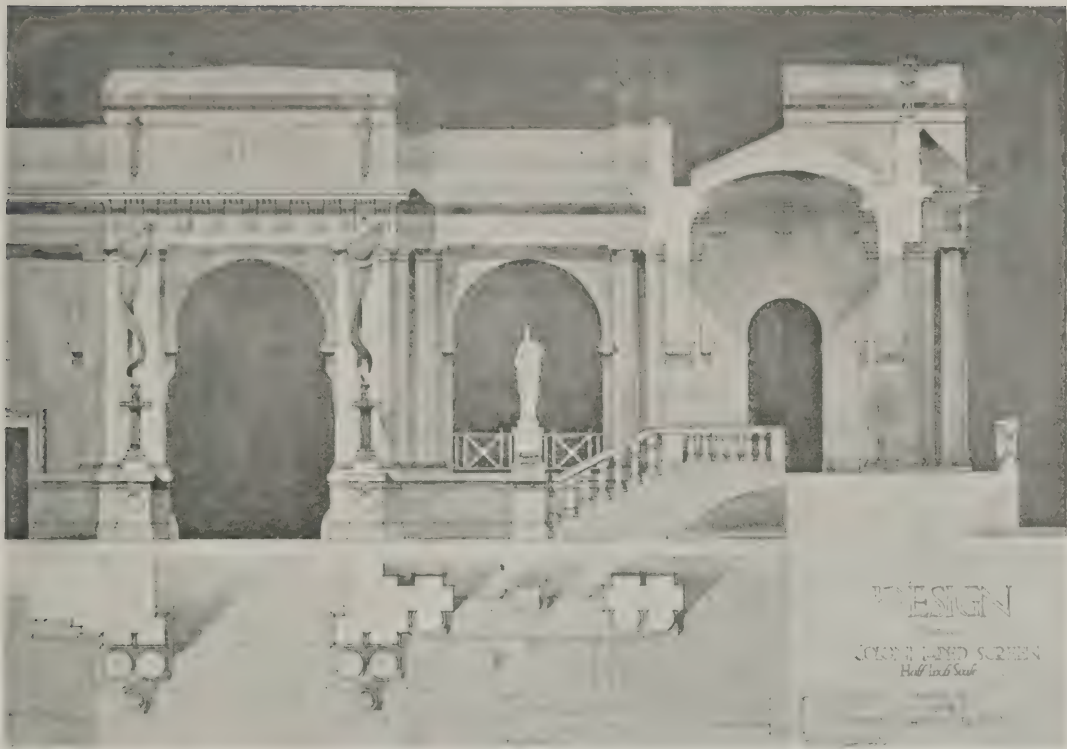
MARLOW PLACE, GREAT MARLOW: DETAIL OF GARDEN FRONT.

*(See page 195.)*

LIBRARY  
OF THE  
UNIVERSITY OF CALIFORNIA



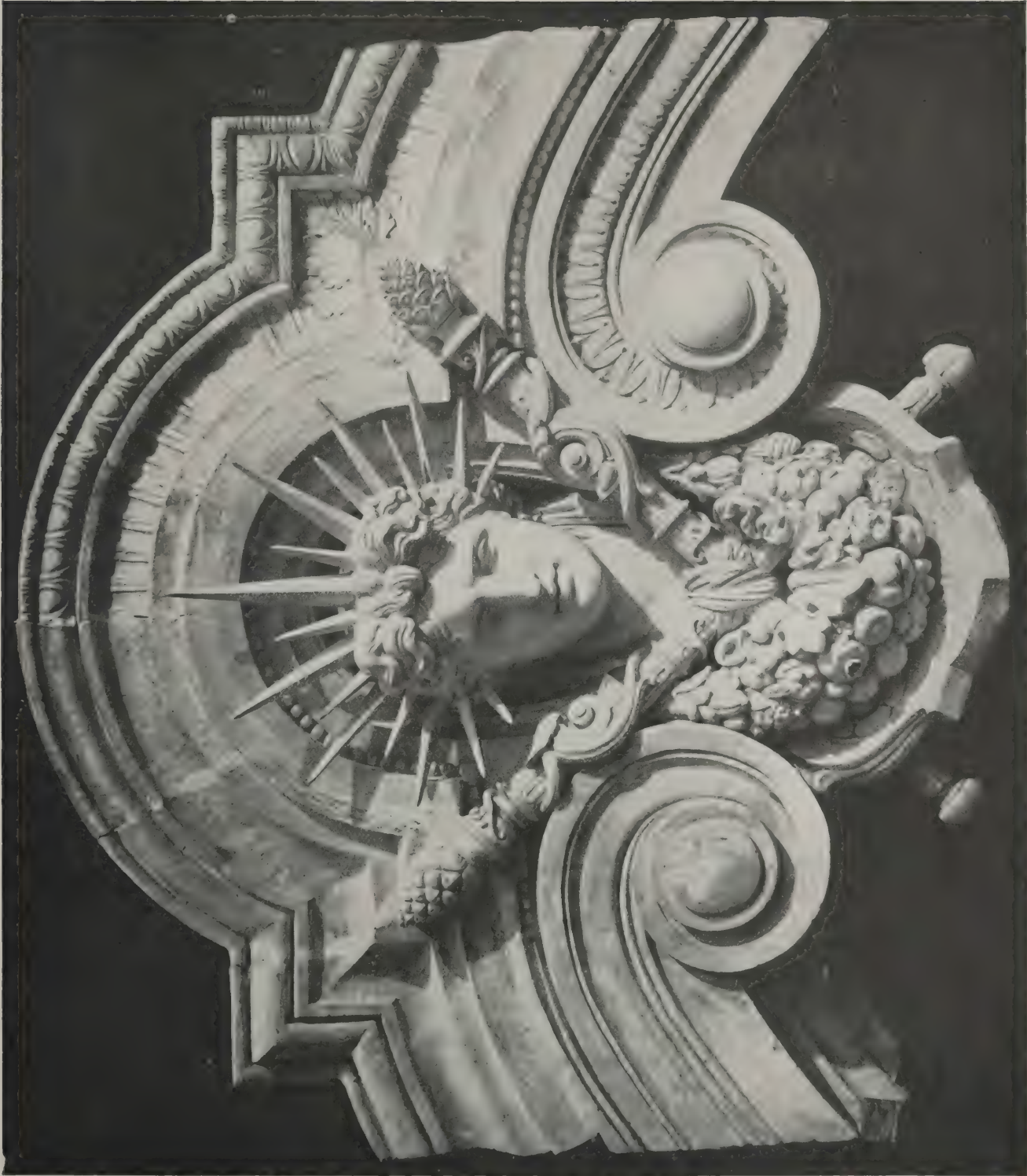
STUDENTS' PAGE.



TESTIMONIES OF STUDY FOR R.I.B.A. FINAL EXAMINATION: APPROVED DESIGN,  
SUBJECT VI. (a). BY ERNEST GEE.  
(See page 195.)

LIBRARY  
OF THE  
UNIVERSITY OF ALABAMA



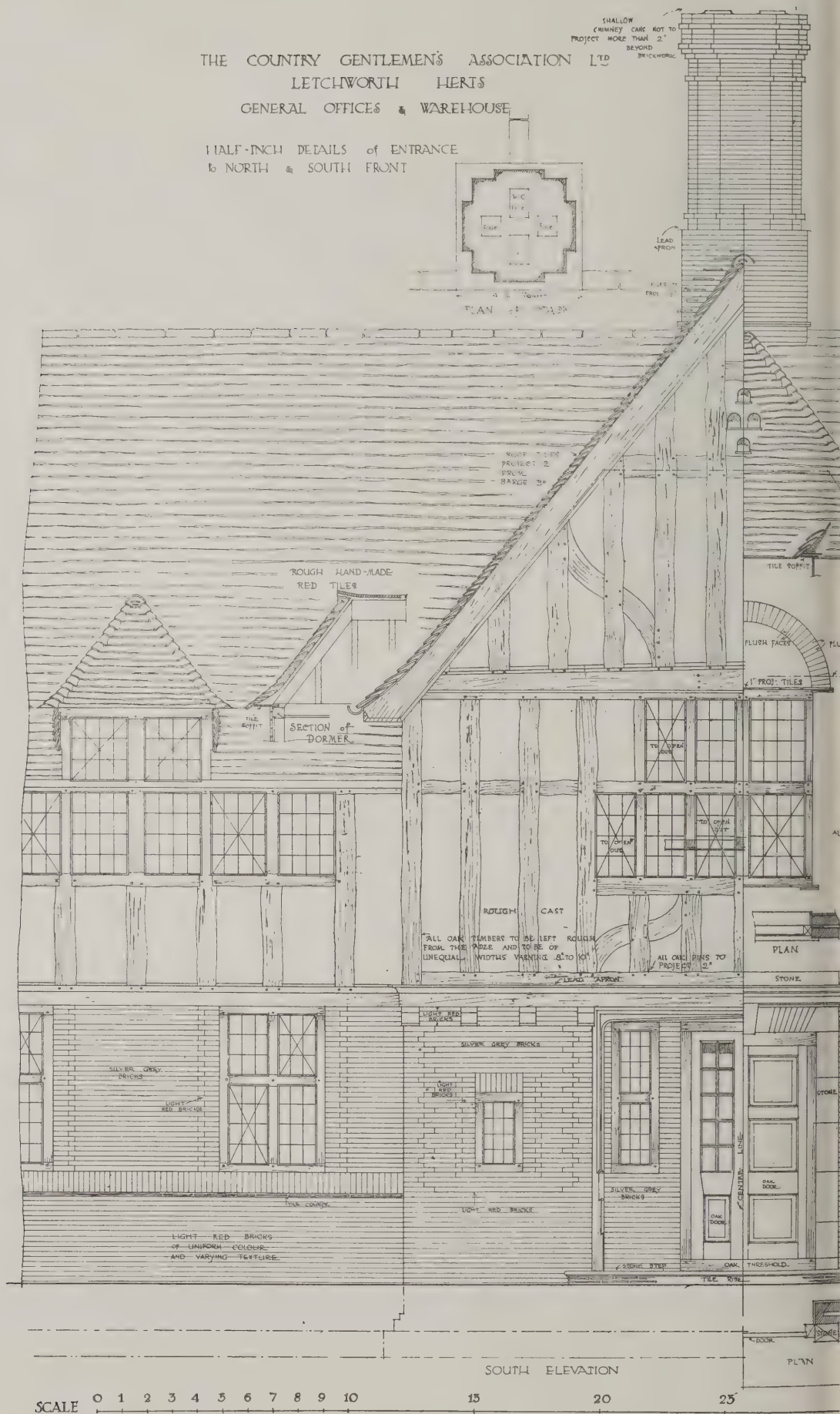


DETAILS OF SCULPTURE FROM THE OPERA HOUSE, PARIS.—V.

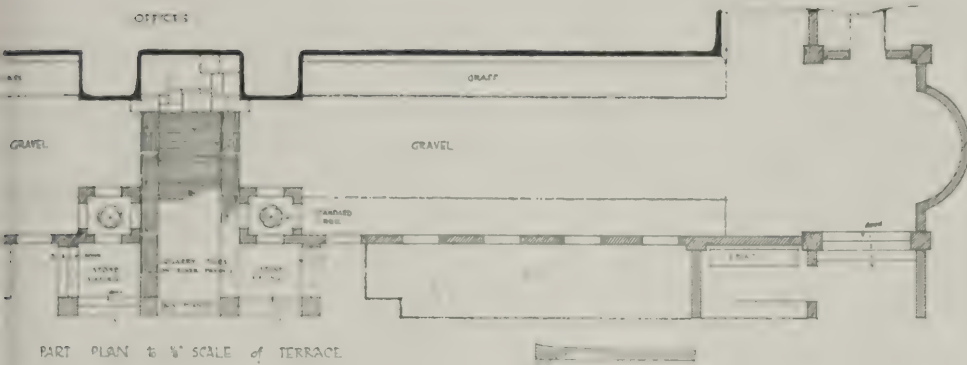
(See page 207.)

THE COUNTRY GENTLEMEN'S ASSOCIATION LTD  
LETCHEWORTH HERTS  
GENERAL OFFICES & WAREHOUSE

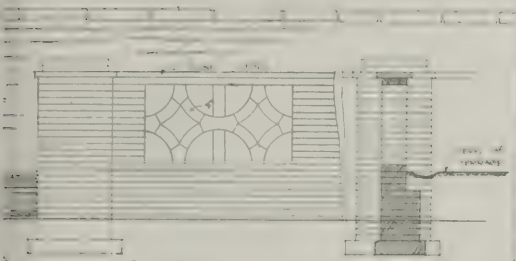
HALF-INCH DETAILS of ENTRANCE  
to NORTH & SOUTH FRONT



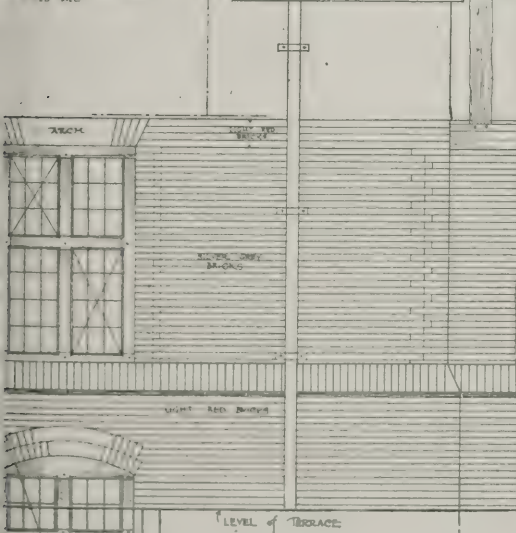
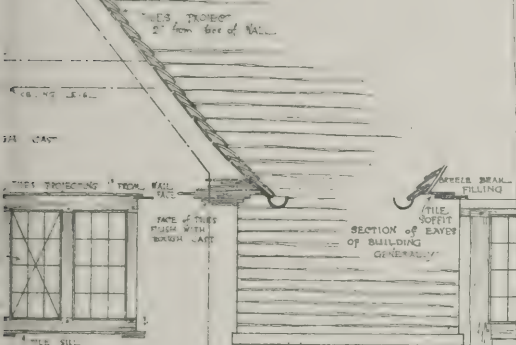




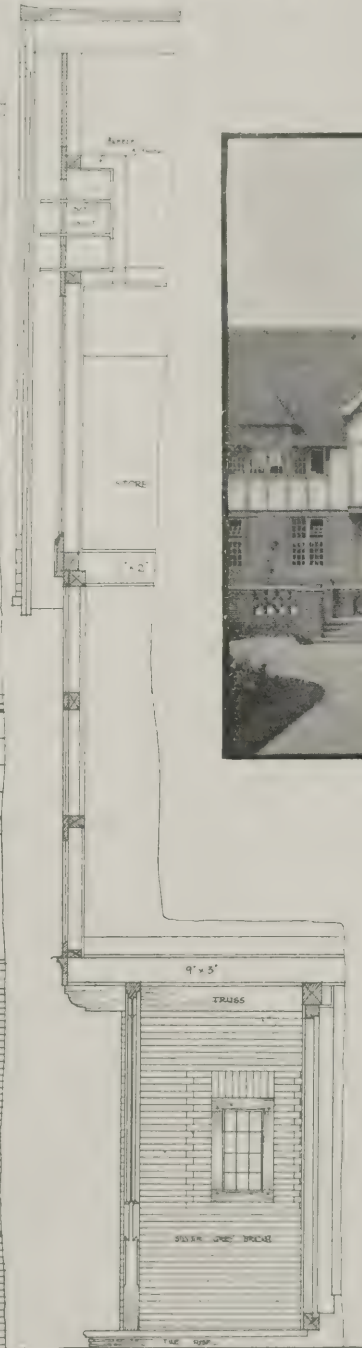
PART PLAN 1/8" SCALE of TERRACE



1/8" DETAIL of MOULDED BRICK PANELS in TERRACE



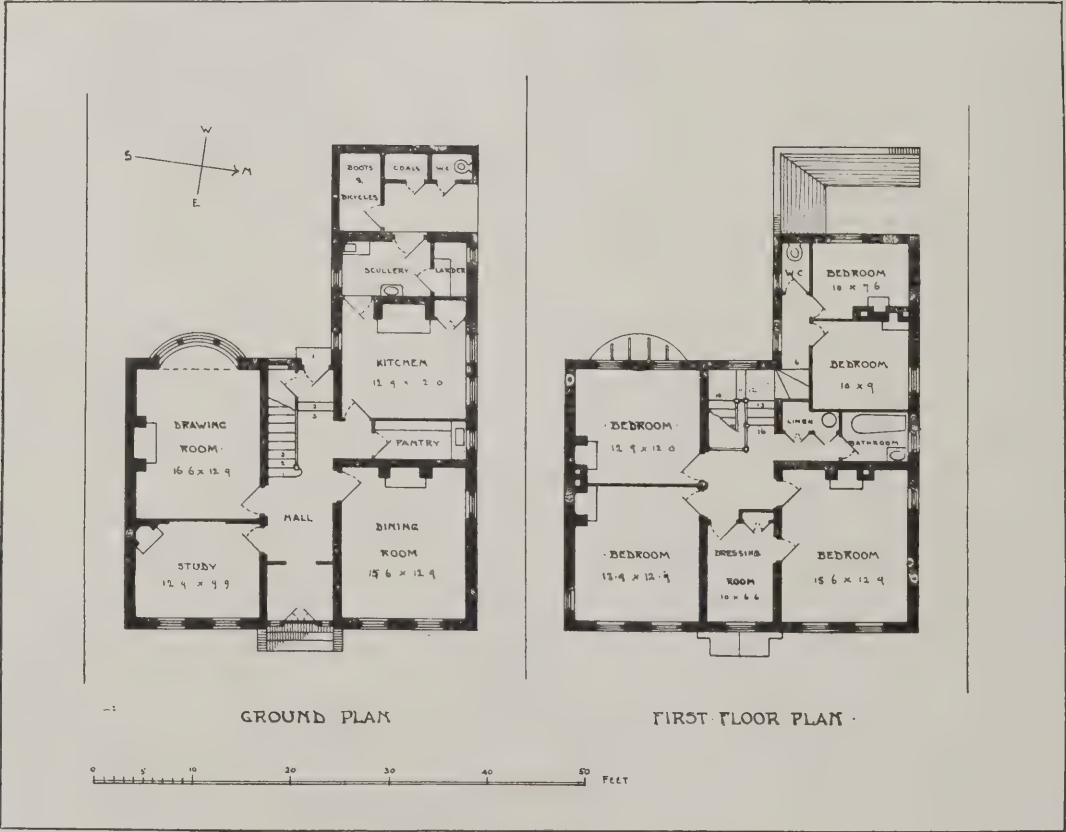
NORTH ELEVATION



SECTION THRO SOUTH FRONT

*R. F. Johnston*  
ARCHT.  
1 TROOK ST. HANOVER SQ. W.





MODERN SMALL HOUSES. XVII.—HOUSES IN HEATH DRIVE, GIDEA PARK, ROMFORD, ESSEX.  
RONALD P. JONES, M.A., ARCHITECT.  
(See page 195.)



## A MONUMENT TO THE AMERICAN NATION.

PROFESSOR DESPRADALLE visited the United States for the first time in 1893, when he was greatly impressed by the splendours of the Exposition then being held in Chicago. The effect of the White City, so boldly erected on the shores of Lake Michigan, haunted the artist, and he immediately began the study of a composition which was to serve not only as a souvenir of the vanished Exposition, but as a monument to the American nation. The history of Rome was inscribed on Trajan's Column; that of America, resolved M. Despradelle, should be written at the base of "the Beacon of Progress"—a shaft 1,500 ft. high.

The studies for this gigantic undertaking, occupying a period of six years, were developed in Boston

and Paris. The relative scale and environment of space were first considered in determining the size of the monument. It was no easy task to combine the decorative elements of architecture with a pyramid of such colossal proportions. The result, however, fully justifies the unanimous verdict of the Salon of 1900—that the conception is at once noble and graceful, and that the thought of glorification is clearly expressed.

The monument is supposed to be placed on the site of the World's Fair (known as Jackson's Park), facing Lake

Michigan. It is connected with the principal roads and avenues of the park, the chief access being from the lake side by the maritime boulevard. A sort of esplanade precedes the access to the chief terraces and platforms, from which can be read the various facts in American history, represented by groups of statuary, bas-reliefs, writing, etc. Industries, art, science, commerce, etc., are symbolised by sculptured trophies of all descriptions. The States and Territories are represented by female figures hand-in-hand, symbolising the indissoluble chain of union; constellations of stars indicate their number.

In the place of honour in the axis of the monument are written the names of the thirteen original Colonies; and upon the stela, guarded by the eagle, is the goddess of the twentieth century, the modern Minerva, flanked by rising tiers of roaring lions. At the base is a great amphitheatre, forming a sort of sanctuary, which would be used for great conventions and mass meetings. The interior is equipped with elevators, which convey passengers to different balconies and galleries, as well as to the powerful beacon placed 500 ft. above the ground. On the lake itself, facing the monument, on the other side of the esplanade, is

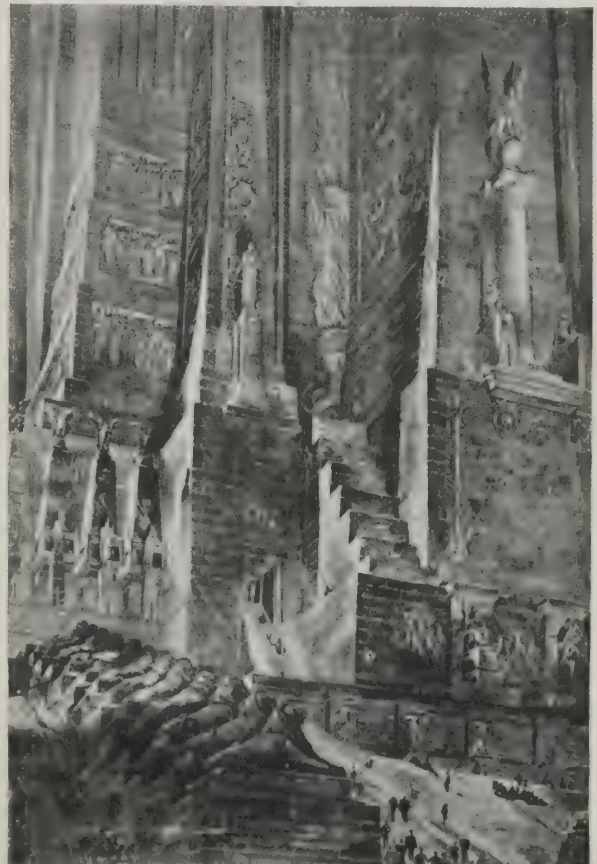
a basin of vast dimensions for regattas, with seats for 100,000 persons. The originals of the drawings which we reproduce were purchased by the French Government, and are now in the Luxembourg Gallery, Paris.

Many eminent French artists have expressed the highest admiration for M. Despradelle's conception. M. J. L. Pascal wrote:—"The author of the proposition [for the acquisition of the drawings by the French Government] begs to be permitted to explain the reasons which, aside from the Piranesian aspect and profound artistic qualities of the composition, made him desirous to keep for the collections of his country the first inspirations of a work the realisation of which, extraordinary as it may appear, is not beyond the bounds of probability. Unlike the temples at Rome, the doors of which were always closed, the portal of this monument will stand eternally open to welcome the theories of its citizens who resort there in pilgrimages. It will be an emblem of elevated thought. War, at its base, represented only for its spirit of sacrifice and abnegation, radiates the essence of initiative, which conduces to the honour of great enterprises, to daring creations of mutual responsibility and generosity, contrasting with the works of destruction of the conquerors of the Old World. It is this which the writer interprets in the noble composition of M. Despradelle, in these extraordinary vertical points recalling the obelisks, but exceeding them in proportions and dimensions; in the assemblages of sublime jets towards an insatiable ideal; in these summits, losing themselves in the mists of clouds. The problem of construction is not insoluble; it appeals to an intelligence on a level with that of the artist."

Professor Despradelle died on September 2, 1912, mourned by all who knew him. His deep personal sincerity and enthusiasm, and his singular power of inspiring others, made him a potent influence in American architecture.



General View



Detail of Base.

A MONUMENT TO THE AMERICAN NATION.

BY C.-D. DESPRADALLE.



## SUGGESTIONS FOR THE IMPROVEMENT OF MODERN ARCHITECTURE.\*

BY PROFESSOR W. R. LETHABY, F.R.I.B.A.

ONE need of the time, for if it is not done now it never can be, is to record so far as may be British building customs as they are still traditionally exercised. Ways of stone cutting as in East Yorkshire, where the masons dress a pretty herring-bone pattern on the face of their stones, ways of laying pantiles, of coating plaster ceilings with skim milk, and of putting tallow and salt into whitewash. Practical building wisdom of this sort should be gathered up and recorded. For this I may point out the country student has special advantages. Cob walling, the making of plaster floors, and "limeash" floors—are those arts still remembered? Even the folklore of building should be gathered up. In what parts of England, and why, do builders put a bush on the roof? If short notes on such subjects were sent to the Record Committee of the Royal Institute of British Architects I am sure that they would gladly collect them and from time to time print the results in the *Journal*. A book of reference which seems to be badly needed is one on the building materials which are most characteristic of the several districts, with as many particulars as possible on local building traditions and a few illustrations of typical examples.

In the modern world there are a lot of things which hang on to architecture without being of it. Architectural scholarship, for instance, draughtsmanship, and æsthetic theory. If these exist it is desirable that they should be as well done as may be. In the last century many University men were architects, but I believe that no architect worked on Greek literary evidences since Wilkins edited the building accounts of the Erechtheum. There is no English book on Greek æsthetics, no modern English commentary on Vitruvius.

*The Need for Research.*

Then we need to be fed with researches on the structural side of architecture; especially we want a type of book which shall be a real study of building possibilities, not exhausting chapters on brick bond, lead flashings, and curtail steps. We have enough of them now. We need to learn to build. It is wonderful, for instance, to observe how builders go on using cement under wrong conditions: after fifty years of experience they seem never to have observed how cement floors crack and cement pointings curl up and fall out. We badly need new units for architectural construction—a square, flat Roman brick would be very useful. Some of the beautiful skylights found in houses of the Gower Street type need to be brought back to memory. We want to get back the power men had a hundred years ago of designing beautifully in cast-iron. We want to get more out of our painters and decorators than plain creamy-white paint and oak graining. We want greater power and efficiency all round.

Again, we need a point of view from which to study ancient art fruitfully. Some of the great Victorian painters showed how ideas might be taken and stimulus received from remote sources without there being the least idea of working in a style. Only, I believe, when we have passed beyond pretending to design in "the styles" shall we have our eyes sufficiently open to see the big ideas which are worth taking and making our own. For an example, the false aim to design fourteenth or fifteenth-century-like windows has just blocked the way to our seizing on the idea of tracery as a universal principle in architecture. Again, students in Rome for centuries had their eyes so glued to the

"Orders" that they never saw the great facts of Roman construction until a French engineer came and discovered a new world in the old.

*New Travelling Studentships Wanted.*

Another thing to be done, I would suggest, is to introduce a newer form of travelling studentship, or of travelling at one's own will. What is wanted is a free mind to observe and record valuable ideas in building and town life—the noting of pleasant ways of doing things. The ordering of museums, lighting of picture galleries, and the decoration of railway-stations should be investigated. Observations should be made of the elegance of French construction in iron and steel, the German excellence in roofing and forms of external plastering, the direct and admirable Swiss way of putting lightning conductors to buildings, the general European decision as to the proper colour to paint constructive ironwork. All are worthy of imitation. Concrete bridges, cages elevated on tall lattice standards for gathering telegraph wires together in an orderly manner, even telegraph posts themselves painted in smart ways, are interesting. Ideas for the desired cheap cottage might be gained from the Swiss *châlet* with its roof at a pitch of 120 deg., containing no lost space and jutting far so as to keep the walls dry. In Switzerland, too, they have learnt how to lay cement pavements without their cracking, and much use is being made in cheap building of cement tiles not hideous in colour, also cement drain pipes and troughs. If these things have to come we must learn how to deal with them as well as may be. I have stayed in the ordinary Swiss *châlet* having its floors, walls, and ceiling all of a piece with deal boarding; each room was quite a pleasant box to be in.

There are ways of keeping out draught that we go on ignoring. Internal doors all over Western Europe are rebate and close against the frame; at the bottom they have an oak threshold with a rounded edge and less than an inch high, but enough to stop the carpet and the wind. Windows often have double casements and in good hotels delightfully efficient light rolling steel shutters are found. The English are said to be very sensitive to draught when abroad. Nice glazed tiles are used—sometimes a pleasant green. The light simple eaves gutters and down pipes are nearly always of zinc, and look perfectly harmless; indeed they are better than harmless—a natural finish which would be missed. So different from our agonies with handsome rain-water heads, swan-necks, and bend round all the string mouldings.

The orderliness, floweriness, and splendour of a sort which are characteristics of cities like Munich, Berlin and Hanover are astonishing. The Germans learn much from our efforts at a free form of house-building at the end of last century. We now have very much to learn back from them.

*A Consul for Civilisation.*

Our rich country might do worse with its riches than spend a few hundreds a year in keeping a consul for civilisation at Berlin, which seems to me to be now the culture capital of Europe. The Institute would do a wise thing if it made one of its studentships tenable there.

Architects, I think, need to realise the bearing of their special knowledge on what in a proper sense should be politics—the art of dwelling in cities. No everything is right with the internal ordering or the external aspect of our big towns; there is not only a London question, but a Leeds question, a Bristol que-

\* Extracts from a paper read at the last meeting of the Architectural Association.

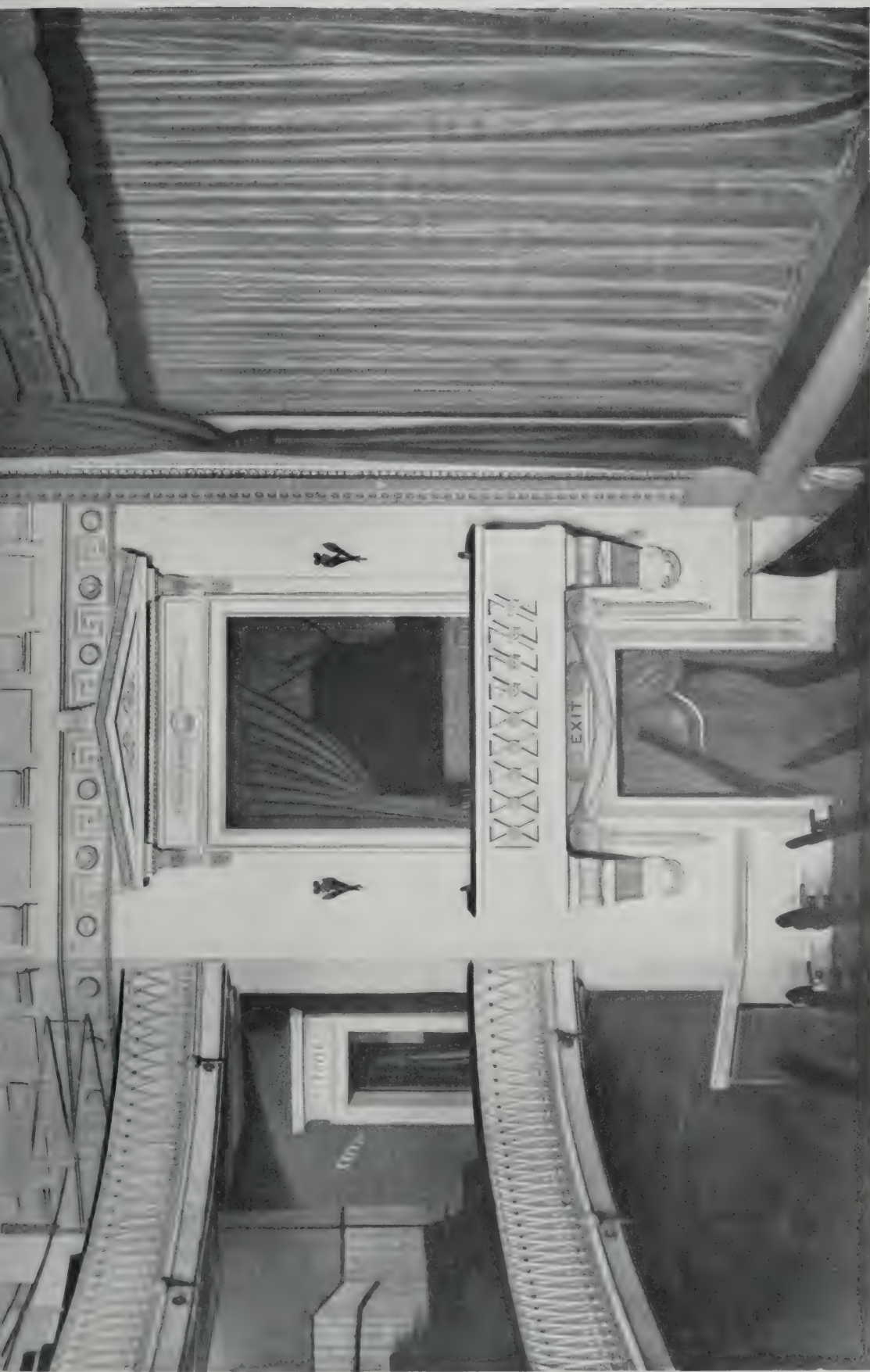


RECEIVED  
JAN 27 1964  
U.S. DEPT. OF AGRICULTURE  
WASHINGTON, D.C.

*Supplement to THE ARCHITECTS' AND BUILDERS' JOURNAL, Wednesday, February 19<sup>th</sup>, 1913.*







THE REPERTORY THEATRE, LIVERPOOL. PROFESSOR S. D. ADSHEAD, F.R.I.B.A., ARCHITECT.

LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS



tion, and a Wolverhampton question. But even such towns as these have some quality, if only that of serious awfulness, which sets them above the somnolent futility of smaller places, say, holiday resorts, like any of them. Think, for instance, of the bad genius which has guided the bringing in of our railways to our towns so that the loveliest quiet space near the several towns has in every case become a maze of cindery truck shuntings. Be it at a beautiful inland town like Oxford or Exeter or seaside towns like Ramsgate, the results brought about by commercial engineering are astounding. Now we have to tidy up all this quickly if we would not fall too far beneath European civilisation. We must remember that we are not only architects with a name on a door so that we may be hired, or not, to tickle people's fancies; we are experts in civilisation, and we have to look after the public health in respect to civic order and beauty.

### WORKING DRAWINGS BY WELL-KNOWN ARCHITECTS.

THE seventeenth example in this series is a detail of the entrance front of new offices at Letchworth, Herts, for the Country Gentlemen's Association, Ltd., which have been built from designs by Mr. R. F. Johnston, of London, W. The front has a total length of 130 ft. The half-timber work is of oak, left natural, in varying widths and with an adzed face. The building stands on a site of some twelve acres, laid out beautifully as trial seed grounds. Mr. William Willett, of London, was the builder. Bricks were supplied by Messrs. Hoare and roofing tiles by Messrs. Collier.

### SCULPTURE ON PARIS OPERA HOUSE.

AS the fifth in our series of sculpture details from the Opera House, Paris, we reproduce on page 201 a fine bold corner-piece, which is used in several places on the grand staircase. Attention is drawn to the individual character of the design, to the admirable way in which the head of "La Liberté" fills the space, and to the vigorous treatment throughout.

### OUR PLATE.

THE Repertory Theatre at Liverpool, illustrated on the Centre Plate in this issue, has been converted out of the old Star Music Hall, and Professor Adshead, the architect, is to be congratulated on the result. The alterations, which had to be carried out very speedily, involved the rebuilding of everything behind the proscenium arch, the stage being increased in depth from 21 ft. to 28 ft. Drastic changes were also made in the auditorium, which has been entirely re-seated and redecorated, tiers of boxes on either side having been removed and single boxes substituted. Social intercourse being a part of the scheme on which the theatre is founded, the provision of a large foyer became necessary, and the need has been met by converting what was formerly a beer-cellar under the auditorium into the apartment shown, in part, by the illustration on this page. The decorative scheme in the auditorium is based on late nineteenth-century French work, while that in the foyer is reminiscent of the portico and treillage of Roman villa. Messrs. John Tanner and Son executed the plasterwork.



REPERTORY THEATRE, LIVERPOOL: THE FOYER. PROFESSOR S. D. ADSHEAD, F.R.I.B.A., ARCHITECT.



## ENQUIRIES ANSWERED.

### *Post-Graduate Studies in Design.*

W. (Ireland) writes: "I have just passed the Final Examination of the R.I.B.A. and am at a loss to know what course of study to pursue now that I have come to the end of the regular curriculum. My inclinations are more to the artistic side of architecture than to the scientific. I have for a long time had a wish that I could learn illustrating or poster-designing, but resisted the temptation till I finished my architectural examinations. Do you think it would be wise to endeavour to learn these now as a sort of hobby and also in the hope that they might help to supplement my earnings during the early years of practice? (I am at present an assistant.)"

—W. would be wise, although he has passed the Final Examination of the R.I.B.A., to continue his studies in design. The Institute Examination, even as amended, does not reach a very high standard in this subject. It presupposes all-round capacity rather than special facility. A course of monumental design, either at the Liverpool School under Prof. Reilly, or at the A.A. School in London under Mr. Robert Atkinson, would be an excellent form of post-graduate work, and fit W. to enter the competitions for the Prix de Rome and the Institute prizes as well as the professional competitions for large buildings.

We do not think specialising in poster designing is of much use either as an end in itself or as a hobby. Architects who are really keen about their work have less time for hobbies than other men. On a further question by this correspondent we prefer not to express any opinion.

### *Making Up Street: Apportionment of Cost.*

S. C. (Birmingham) writes: "I am compelled by a certain corporation to bear the cost of making up a street to their specifications. Is there any Act under which I may obtain an allowance towards the initial cost?"

—No doubt the corporation are proposing to proceed under the "Private Street Works Act, 1892," which is now extensively adopted by local authorities. If you are an owner of property in the street I fear there is no doubt that you will be obliged to pay a fair share of the cost of making it up; but the Act gives full power of objection to the plans and provisional specifications, upon the grounds that the work is unreasonable, the cost wrongly apportioned, or that the street is a highway, repairable by the public at large.

F. S. I.

### *By-laws and Cheap Cottage Building.*

E. L. H. (London) writes: "Kindly give information as to what is being allowed by rural district councils in the building of cheap cottages for farm labourers. I believe that in some districts wooden buildings are sanctioned for the purpose."

—I do not know of any rural district council which has altered its by-laws to permit the construction of wooden cottages, though districts still remain where there are no building by-laws (or only Part III. of the Public Health Amendment Act, 1890) in force. In many cases, also, timber buildings are sanctioned as "temporary" structures, and the various makers of portable buildings are no doubt

well informed as to the districts where this is habitually permitted, and would give information. The Local Government Board now appears to be sympathetic towards some relaxation in the stringency of rural by-laws, and circularised local authorities to this effect last year. I would advise you to approach the architectural department there for information as to whether any definite scheme has been formulated. The only instance of a modern timber-built permanent cottage with which I am personally familiar is the excellent one erected by Mr. Troup at the first cheap cottage exhibition at Letchworth, where the conditions were exceptional. G.

### *Specification for Rough-Cast.*

LETHE writes: "Kindly inform me how to specify a reliable rough-cast for the exterior of a town house, giving particulars of thickness, number of coats, and materials."

—The most reliable rough-cast is three-coat work in Portland cement and sand, which may be specified as follows: "Rough render external walls where shown with Portland cement and clean washed sand mixed in the proportion of one part of cement to three parts of sand and applied at least  $\frac{3}{8}$  in. thick, well scratched as key for subsequent coat. Floating coat to be  $\frac{1}{4}$  in. thick, of similar mixture and applied as soon as first coat has set hard. Follow on immediately with pebble dash composed of clean pea-grit and pebbles to average ( $\frac{1}{4}$  in. or  $\frac{1}{2}$  in., etc.) gauge, mixed with neat cement and water to consistency of batter and dashed on the floating coat while still soft with the back of a trowel, movable boards being set to receive the surplus. Collect this for immediate re-use. Twice distemper selected tint with Duresco (outside quality) or other approved washable distemper when work is thoroughly hard and dry."

A mixture which is richer in cement is apt to result in crazing, and if extreme weather-resisting qualities are desired in an exposed position a small proportion of one of the new waterproofing additions should be included with the cement. About 3 lb. to 100 lb. of cement is needed. G.

### *Cottage Hospitals.*

YOUNG ARCHITECT writes: "I should like to obtain the following information with respect to cottage hospitals: Materials usually employed, number of beds, cost per foot cube, cost per bed, and total cost."

—This query is of too wide a scope. All the factors mentioned vary widely with differing requirements and conditions, and it is not to be wondered at that architects decline to make public the results of their experience in this respect. Enquiries had better be directed to specific instances. G.

### *Loads in Structures.*

E. S. (Scarborough) writes: "In calculating the strength of rolled steel joists in a structure, what weight should be allowed for (1) floors and roofs (including, of course, possible loads) per yard super, and (2) for brickwork per cubic foot? Can you recommend a book dealing with this subject?"

—The loads are generally estimated at per foot super. For floors the dead load,

or structural load, depends upon the construction proposed, and must be assumed in the first instance; then, when the design is approximately fixed, if the assumed load differs much from the actual load fresh calculations must be made. For the live, or external, or superimposed load the allowance will depend upon the use to be made of the floor. The minimum allowances are, for private dwellings 70 lb. per sq. ft.; for hospital, asylum, and workhouse wards, common lodging-houses, and hotel bedrooms, 84 lb. per sq. ft.; for offices, counting houses, etc., 100 lb. per sq. ft.; for churches, public meeting rooms, reading rooms, retail shops, theatres, workshops, etc., 112 lb. per sq. ft.; for ball rooms and drill rooms, 150 lb. per sq. ft.; for book stores, museums, and warehouses, 224 lb. per sq. ft. For roofs the dead load will depend upon the construction, varying from 7 lb. per sq. ft. of sloping surface in sheds to 28 lb. per sq. ft. in large heavy roofs. The wind allowance should be taken at 28 lb. per sq. ft. normal or perpendicular to the slope. The weight of brickwork varies from 110 to 130 lb. per cubic foot; for ordinary calculations it may be taken at 1 cwt. The most useful books to study will be "Theory and Practice in Designing" (Constable, 6s. net), and "The Mechanics of Building Construction" (Longmans, 6s. net).

HENRY ADAMS.

### *Prohibitive Clause in Articles of Pupilage.*

CORRESPONDENT writes: "My article of apprenticeship to an architect contains a clause to the effect that, on the expiration of my term of pupilage, I must not, either solely or jointly with any other person or persons, carry on, or be engaged in, the profession of an architect or surveyor within twenty-five miles of the railway station of the town. Does this clause prohibit my taking the position of a junior assistant within the specified radius?"

—The clause quoted is a very usual one. It is inserted for the protection of a principal, who might otherwise be exposed to the risk of losing a portion of his business owing to the inside knowledge acquired by a pupil during the term of his articles. In my opinion it applies as much to a junior position in another architect's service as it does to a partnership. F. S. I.

### *A Modern Skittle-Alley.*

A. E. H. (Bournemouth) writes: "Kindly give details and dimensions of an up-to-date skittle-alley."

—The required particulars are shown in the accompanying sketch. As to the size of the apartment, the minimum length would be 32 ft. and the minimum width 14 ft.; but as space must be provided for the benches of the onlookers and for boxes and racks for storing pins and cheeses, if the width is 14 ft. the length should be increased to afford this space behind the shoe; while if the length is no more than 32 ft. the width should be about 16 ft., as the sides of the run would then be thus utilised: it is a question of relative convenience in planning.

As to materials, pure indiarubber for the floor of the "run" has been found to wear in holes and to be enormously costly in renewal. A carefully selected patternless cork lino is satisfactory and less expensive, but some makes tend to become slippery with wear. The frame and wings,



which have to stand hard usage, are generally of hornbeam, but African oak has been successfully used. The pitch and sides to front of frame are of deal, and the kerbs to "run" of fir. The noise in use is reduced if the sleepers and frame are bedded in clay instead of concrete.

#### Architects' Assistants in Canada.

CORRESPONDENT writes: "Can you give me any information with respect to the prospects of architectural assistants in Canada?"

—In the course of his recent lecture at the R.I.B.A., Mr. F. S. Baker said that Canadian architects had to rely almost entirely on the British Isles and the United States for skilled assistants, and he could not recall a time during the past ten years when there had been more than enough. He would, however, urge upon all intending emigrants the desirability of securing an appointment before leaving this country. The Royal Architectural Institute of Canada, 5, Beaver Hall Square, Montreal, might be of assistance.

#### POINTS IN THEATRE DESIGN.

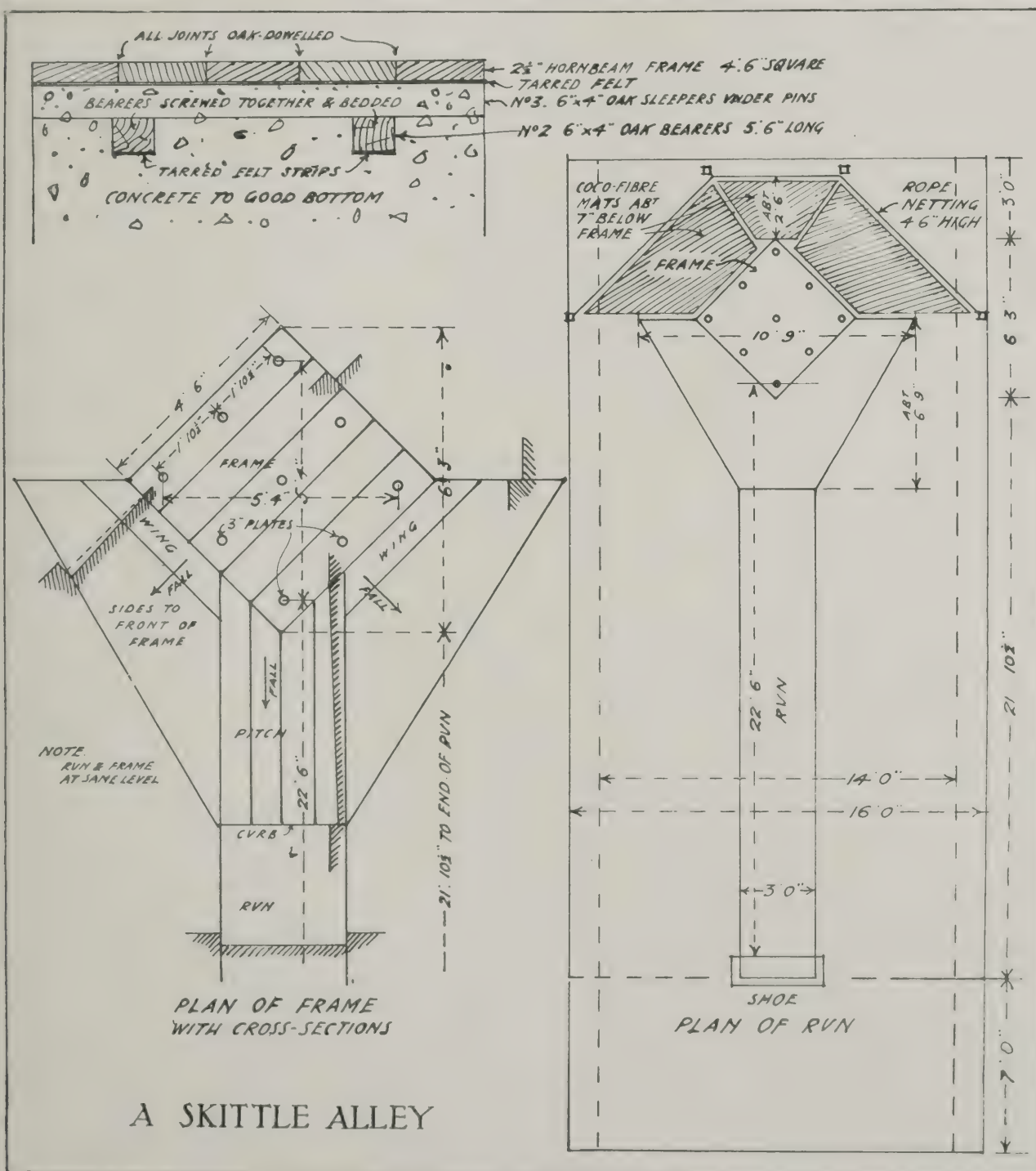
Theatres by no means escape "the eternal law of change." A few years ago it was essential to provide large auditoriums, with generous balcony and gallery capacity. Now the demand, according to Mr. William Albert Swasey, F.A.I.A., the architect of many notable theatres in America, is for small theatres; while the moving picture craze has—at all events in New York—rendered theatre galleries superfluous. For a while spectacular productions ran their course; then followed early English comedy, then light opera; and at the present moment the problem play of social and political life holds the stage.

All these vagaries of fashion confront the architect, who, however, regards as the first and most important requirement of theatre construction the protection of the audience and actors against fire and panics. In large cities absolutely fireproof construction can be added to adequate stairways and exit facilities, but in smaller

towns, where fireproof construction would prove too costly, the various means of exit and fire protection between stage and auditorium are the only safeguards. With these safeguards properly planned and maintained, there should be ample time between the appearance of smoke and the actual blaze to allow of the theatre being completely emptied. In this way fireproof construction becomes immaterial so far as the public safety is concerned.

Mr. Swasey suggests that the fireproof stairway towers in use in modern factories and school buildings should be adopted for theatres. Large double rooms on each level, opening with panic bolts on to generous landings, give far better emergency exits for balconies and galleries than the outside fire-escapes that in New York are compulsory.

Most of the danger from fire comes from the stage, and the actors run far greater risks than the audience. The provision of rooms for the actors in the rear or at the side of the proscenium opening above the basement, does not seem as safe as



A SKITTLE ALLEY

placing the dressing-room under the parquetry floor, shut off from the stage by fireproof walls and doors, and with fireproof passage ways and steps leading to the street.

Heating apparatus should be isolated, and its enclosure made entirely of fireproof material. The stage opening is, of course, protected by an automatic fire curtain. The electric equipment is of iron conduit work throughout, with all stage lines, switches, and electrical appliances exposed and controlled from its switch-board.

The next important consideration is the provision of sight lines and the elimination of columns and other obstructions. In order that every spectator may see at least two-thirds (which should be the minimum view) of the entire stage, the side seats require very careful attention. For a stage from 35 ft. to 40 ft. in depth an opening of the same dimensions is ample, and allows for three banks of seats with four aisles. As no seat in the auditorium should have more than six intervening between it and an aisle on either side, it will be seen that only fourteen seats can be placed in each row. Taking a minimum width of 22 in. for each seat and an average of 46 ft. for the two centre aisles and 3 ft. for the side aisles, we have 91 ft. between the walls, so that for a building of this character from 90 ft. to 95 ft. in width is ample. The depth, of course, varies with the amount of space allotted to the foyer and lobby, but for general practice twenty-four rows for theatres of this width should be the maximum number. Allowing 32 in. from back to back, and for stage apron and orchestra, we have a depth from curtain line to the last row of seats of 75 ft., or a total depth of 130 ft. for the entire theatre building.

In grading the floor, the slope should be so arranged that the eye-level for the first few rows should clear the stage apron; otherwise the actors standing back from the curtain line are seen only above their waists, so that the most desirable seats in the house may become almost the worst—a contingency that often occurs through over-anxiety to get good sight-lines for the back rows. The depth of the floor, in relation to the stage level, should not be below the sight-line of those sitting in the first row, and the reflector over the footlights should be very little above it. Where this point has not received due attention, the spectators in the first five or six rows see only footless performers, while all effects of grass plots and marble floors are left for the delectation of the balcony and gallery.

Centre aisles should be avoided, as they occupy most desirable seating space, and are rather confusing to the actor who has to face his audience. The question of placing boxes on the ground level, or of starting them at a height of three or four feet above the stage level, depends on whether more box seats or more stalls are wanted; but whenever two or more boxes are designed in a row one must be elevated above the other so that the occupants of inside seats can see as well as those at the rail.

The balcony and gallery sight lines depend entirely upon the required seating capacity and consequent distance from the curtain line. It is important that each seat should give a clear view of at least the orchestra pit or stage apron over the balcony rail. The seats should be curved so that they are at right angles with the sight lines. There is nothing so uncomfortable as sitting sideways or keeping the

head turned during a long act. Generous room from back to back will prevent much annoyance being caused by late-comers to those already seated. The side seats should be given a dip as they get nearer the stage.

Extreme height, especially above proscenium opening, is undesirable, as the voice will carry to a much greater distance if the sound-waves are not lost in space far above the audience. When a large auditorium is desired, it is better to get the majority of seats on the ground floor in order to have a low ceiling, omitting a gallery unless it can be planned behind and above the balcony. Coved ceilings and rounded corners and angles are also essential to good results; while keeping the foyer and side aisles shut off by boxes, each with its own ante-room, not only prevents outside disturbance, but helps the design. The St. Louis Odéon acquired its reputation for perfect acoustics from these features, though it has a depth of 120 ft. from the curtain line to the last row of seats, by the unusual width of 116 ft.

On the stage every inch of available space should be retained for scenery, and in addition to the movable trapped floor at the back of the curtain a large electric lift to take bulky properties to the basement is most desirable.

For both design and decoration (Mr. Swasey concludes his article in "The American Architect") the architect should find his inspiration in the best examples of the various styles. He should avoid coarse ornament and blatant or bizarre effects, remembering that his work is to decorate construction rather than to construct decoration.

## COMPETITIONS.

### *Town-planning Scheme for Oldham.*

In this competition, which was instituted by Mrs. S. A. Lees and Miss Marjory Lees, the assessor, Professor S. D. Adshhead, F.R.I.B.A., has made the following awards: 1 (£100), Mr. F. Thorpe, Licentiate R.I.B.A.; 2 (£50), Messrs. C. T. Taylor, A.R.I.B.A., and Evan Roberts; 3 (£25), Messrs. J. Collins and Son: all of Oldham.

### *The Prix de Rome Jury.*

The jury elected by the Academy of Beaux Arts to adjudicate in the Prix de Rome competitions is as follows: MM. Deglane, Defrasse, Bénard, and Lambert, with MM. Marcel and Tournayre as supplémentaires.

### *The Paris Cheap Dwellings Competition.*

The competition held by the Paris municipal authorities with the object of obtaining "artistic" designs for the working-class dwellings to be built in the Rue Emile Zola, has resulted as follows: 1 (15,000 francs), M. Payret-Dortail; 2 (8,000 francs), M. Rigaud; 3 (7,000 francs), M. Emile Bois; 4 (6,000 francs), M. Georges Vaudoyer; 5 (4,000 francs), M. Besnard. The author of the design placed first will be invited to supervise the work, and his premium will merge in his fees. Reinforced concrete will be largely employed in the buildings, and every possible means of economising cost—as by the standardising and duplication of the elements of construction—will be adopted. It is understood that the Société Parisienne des Habitations Economiques has obtained several important Government concessions, among them being an exemption from imposts for twelve years.

## LIST OF COMPETITIONS OPEN.

FEBRUARY 22.—TRAINING COLLEGE GLASGOW.—Limited to six selected architects.

FEBRUARY 26.—DECORATIVE COMPOSITIONS, BRISTOL.—The Academy of Fine Arts, Bristol, invite competitive sketch designs for painted decorative figure compositions to fill four segmental lunettes under the dome. The selected artist to receive £500 for the work. Assessors, Messrs. Beresford Pite, W. R. Lethaby, and Gerald Moira. Sections to be seen at the office of the architect, Mr. S. S. Reay, F.R.I.B.A., 47, Milsom Street, Bath. Designs to be sent to Professor Beresford Pite, F.R.I.B.A., Royal College of Art, South Kensington, S.W.

MARCH 1.—CITY HALL, WINNIPEG.—Limited to British Architects in Canada. Assessor, Mr. Leonard Stokes, F.R.I.B.A.

MARCH 1.—MUNICIPAL BUILDINGS, RANGOON.—Premiums, £300, £200, and £100 Particulars (£1, to be refunded) from Messrs. Ogilvy, Gillanders and Co., Suite Court, 67, Cornhill, London, E.C.

MARCH 31.—GARDEN SUBURB, IPSWICH.—Competitive designs are invited for laying out about 26 acres of land as a working-class suburb on the lines of a modified garden city. Premiums, 50, 30, and 2 guineas. Conditions and plan (10s. 6d. returnable) from Mr. Will Bantoft, Town Clerk, Town Hall, Ipswich.

APRIL 2.—HIGH SCHOOL, MOTHERWELL.—Dalziel School Board invite designs for a new high school. Assessor, Dr. J. J. Burnet, A.R.S.A., F.R.I.B.A. Second, third, and fourth premiums, £40, £30, and £20. Conditions to be obtained on or before February 15 from Mr. Thomas M. Young, Clerk to the School Board at Dalziel, Motherwell.

APRIL 18.—SECONDARY SCHOOLS, READING.—Reading Education Committee invite designs for Kendrick Boys' and Girls' Secondary Schools from architects within the borough. Premiums, 70 guineas and 30 guineas. Particulars, Education Office, Blagrove Street, Reading. Mr. Ernest Newton, A.R.A., F.R.I.B.A., is the assessor.

APRIL 29.—MUNICIPAL OFFICES, BARNET.—Barnet Urban District Council invite designs for new municipal offices, to be erected at a cost not exceeding £4,000. Premiums, £25, £15, and £10. Particulars from Mr. W. F. Wilkins, M.S.E. 40, High Street, Barnet. Designs to be delivered to Mr. H. W. Poole, Council Offices, 40, High Street, Barnet. (See note in our issue of February 12.)

MAY 31.—"IDEAL HOMES" EXHIBITION.—COTTAGES AND BUNGALOWS.—Designs are invited for (1) A workman's detached cottage; (2) a pair of workmen's semi-detached cottages; and (3) a bungalow for four single persons. The prize in each case is £50. Assessor, Mr. Leonard Stokes, F.R.I.B.A. Particulars (not later than March 15) from the Secretary, Ideal Homes Exhibition, 130, Fleet Street, E.C. to whom designs are to be sent.

JULY 1.—ROYAL PALACE AND LAZARETTES, SOFIA.—Particulars of this competition are obtainable from the Commercial Intelligence Department, Board of Trade, Basinghall Street, E.C. [In consequence of the war, the date has been extended from that formerly announced.]

NO DATE.—KURSAAL, FOLKESTONE.—Cost not to exceed £29,000. Premiums, 100, 50, and 25 guineas; premiums of accepted design to merge in fees. Apply to Town Clerk, Folkestone.



## PROJECTED NEW WORKS.

*Street Improvements for Burnley.*

Mr. R. H. Bicknell, M.I.C.E., Local Government Board inspector, has held an inquiry into the application for leave to borrow £3,212 for the purchase of land interests relating to proposed street improvements, the two schemes for which are estimated to cost respectively £47,936 and £35,019.

*Huddersfield's Public Buildings.*

In addition to the difficulty of choosing a site for its new public library and art gallery, Huddersfield is faced with the necessity of providing more adequate municipal buildings. It is suggested that a central site should be cleared for the erection of a new town-hall, large enough to accommodate all the departments of municipal work, and "a fine building, of imposing size and architectural beauty," being advocated in the local Press.

*Isolation Hospital for Howden.*

Mr. W. W. E. Fletcher, Local Government Board inspector, has held a public inquiry into an application by the Howden Rural District Council for sanction to borrow £3,200 for the provision of an infectious diseases hospital.

*Dunfermline Library Extension.*

In regard to the proposed extension of Dunfermline Central Library, Mr. Carnegie had signified his willingness to bear a part in the cost of the extension to the amount of £5,000 and it was hoped that the Carnegie Dunfermline Trust would also share in the estimated expenditure of £11,000.

*New Secondary School at Harrow.*

Middlesex Education Committee have decided to erect a secondary school for boys at Harrow at a cost of £13,088.

*Steel Works Extensions.*

Shropshire steel-making establishments are extremely busy and several companies are extending their works. Messrs. W. & A. Colville and Sons, Motherwell, have acquired 120 acres of ground adjoining their present establishment for the purpose of making additions to their already extensive plant; while the extensions which are being made at the Dalzell Steel Works, Motherwell, will make these the largest works of the kind in the United Kingdom.

*Marylebone's New Town Hall.*

It is estimated that the cost of Marylebone's new town hall, to be erected in Marylebone Road, will be £120,000.

*Workmen's Dwellings, Tiverton.*

Tiverton Town Council have approved the conditions of a competitive scheme for laying out of a six-acre site of workmen's dwellings.

*"Baker Street Circus."*

At Baker Street, on February 10, the work was begun of forming a circus similar to Piccadilly and Regent Circuses.

*Proposed New Guildhall for Devonport.*

The Devonport Town Council is being asked to approve a scheme for a new guildhall and municipal buildings, the cost of which will be £95,000, exclusive of planning and architect's fees. This is £10,000 more than was mentioned when the subject was discussed by the Council a few months ago. The Special Committee which makes the recommendation accounts for the difference by the additional requirements of the departments

and increased cost of labour and materials since 1906, when £70,000 was fixed as the probable cost.

*Local Government Board Enquiries.*

The following Local Government Board enquiries into applications for loans for new works have been recently held: Birmingham, February 4th, Mr. Edgar Jones; £40,000 to purchase land for widening Broad Street. Bognor and Westhampton, February 6th, Mr. P. M. Crosthwaite; £11,000, sewage disposal. Coleraine, February 4th, Mr. J. F. MacCabe; £3,200, sixteen workmen's dwellings. Cork, January 30th, Mr. P. C. Cowan; £12,864, paving works (supplementary). Leeds, January 29th, Mr. A. G. Drury; £30,000, gas undertaking. Portrush, February 4th, Mr. J. F. MacCabe; £2,200, additional workmen's dwellings. Swansea, January 28th, Mr. R. G. Hetherington; £3,600, relaying water-mains. Swindon, February 7th, Mr. F. O. Stanford; £24,000, extensions to Rodbourne sewage-disposal works.

*Housing at Wrexham.*

The Health Committee of Wrexham Rural District Council have recommended the building of fifty houses containing three bedrooms each, "provided such houses could be rented at 5s. 6d. or less weekly without any loss to the District Council."

*Tower for Wombwell Church.*

Messrs. Hadfield, architects, have prepared designs for a western tower and north porch for Wombwell Church. The tower is shown 25 ft. square, exclusive of buttresses, and 110 ft. high to the top of the pinnacles. The ringing chamber has an internal height of 16 ft., and a clock chamber 10 ft. high. The flat roof of the tower is to be constructed of reinforced concrete. The cost is estimated at £2,690.

## OBITUARY.

*Mr. Henry Martin, J.P.*

Mr. Henry Martin, J.P., aged seventy-seven years, of 14, Billing Road, Northampton, and a former mayor of the borough and a member of the Town Council since 1884, lately in business as a builder and contractor, left estate valued at £129,094 gross, with net personality £52,086. He directed that when William Dickens, lately foreman in his business, shall become unable to continue work, his son shall pay to him £100 per annum for the rest of his life.

*Mr. E. H. Gill.*

The will of Mr. E. H. Gill, of Count Lodge, Farleigh, Kent, builder, has been proved at £62,720 gross.

*Mr. John Henderson.*

Mr. John Henderson, of 12, Rubislaw Den, North Aberdeen, retired builder and valuator, who died on November 6, left, in addition to considerable real estate, personal estate in the United Kingdom valued at £10,378.

*Mr. Arthur Crawford Hick.*

Mr. Arthur Crawford Hick, architect, who has died at Putney at the age of fifty-one, had held the office of diocesan surveyor for Durham, and had built or restored several churches in the North of England. His recreations brought him distinction as an entomologist and as a judge and breeder of Borzoi hounds.

## NEWS ITEMS.

*The Editorship of "The Builder."*

Mr. Herbert W. Wills, F.R.I.B.A., has been appointed editor of "The Builder."

*Pudlo Waterproofing Powder.*

Pudlo, the patent powder which renders cement waterproof, is being used on the new Prudential buildings, Rochdale. This is only one of many important buildings for which it has recently been specified. This powder, which is manufactured by Messrs. Kerner-Greenwood and Co., is now being specified by architects in all classes of cement and concrete work.

*More Subways for London.*

The London City Engineer has been instructed to report on the feasibility of constructing a pedestrian subway at Ludgate Circus. The difficulties which present themselves are almost entirely due to the existence at this point of the Fleet sewer, and to the dangerous nature of the ground owing to the course of the old Fleet River. Another subway in contemplation is at King William Street, near London Bridge, while one is under construction opposite the Mansion House Station.

*The Building Trades Exhibition at Olympia.*

The Right Hon. the Lord Mayor, accompanied by the Sheriffs, will open in state the Building Trades' Exhibition at Olympia on Saturday, April 12th next. The vote of thanks to Sir David Burnett for performing the ceremony will be moved by Professor Reginald Blomfield, A.R.A., president of the Royal Institute of British Architects, and seconded by the Hon. Gerald Strutt, President of the Surveyors' Institution. This exhibition, the tenth of the biennial series organised in London by the Messrs. Montgomery, will be, if possible, even more representative of the various branches of the building trade than was its predecessor in 1911.

*London County Council's New Hall.*

At last week's meeting of the London County Council, the recommendation of the Establishment Committee that an advance should be made on the fees which will soon be payable to Mr. Ralph Knott and the Council's architect in connection with the building of the new County Hall was discussed. Mr. I. Salmon, the chairman of the Establishment Committee, said that the cubical capacity of the hall had been increased by 86,000 ft., at an extra cost of £90,000. The higher cost of materials and labour had also added to the cost, and the estimates would probably be exceeded by about £230,000. It was hoped that the building would be completed in three years.

*New Buildings in Kingsway.*

The vacant building sites in Kingsway are rapidly being filled. Construction has been begun on one site of a new Government offices building. It will be six storeys in height, of stone, and will give accommodation to the Public Trustees and the Lunacy Commissioners. In addition to this, one firm of contractors has in hand four new buildings, one of which will be designed for offices, and will be six storeys in height. Another will be an office building, showing a very great advance on the usual London type. It will be of ten floors, and each floor will have 6,000 ft. of clear space, without a pillar.



With the completion of the work now in hand, there will be few gaps left in Kingsway.

#### Partnership.

Mr. Edmund Wimperis, F.R.I.B.A., has taken into partnership Mr. W. B. Simpson, who has been with him for some time.

#### Lectures on Reinforced Concrete.

In connection with the School of Architecture at the Regent Street Polytechnic, two special lectures on reinforced concrete construction will be delivered by Mr. G. A. Clark, A.M.I.C.E. (of the Indented Bar and Concrete Engineering Co., Ltd.), this (Wednesday) evening and next Wednesday evening, February 26, at 7.30 o'clock.

## IN PARLIAMENT.

(By Our Press Gallery Representative.)

#### Mappin Terraces at the Zoo.

In the House of Commons Mr. Wedgwood Benn, replying to Mr. Geo. Thorne, said the scheme called the Mappin Terraces at the Royal Zoological Gardens had been brought to the notice of the First Commissioner of Works and he had personally inspected the model and site. He was of opinion that with minor alterations the plan would add considerably to the attractions of the Royal Zoological Gardens and be of great interest to the public in the adjoining park. Besides this, the conditions under which the animals lived would be improved.

#### Government Buildings in Edinburgh.

The designs for the new Government buildings on the Calton Prison site, Edinburgh, are to be thrown open to competition. A statement to that effect has now been made in the House of Commons by Mr. Wedgwood Benn. Mr. Hogge asked whether the First Commissioner of Works had considered the suggestion of publishing the designs in the Scottish Press in order that public criticism might be offered. Mr. Wedgwood Benn replied that the First Commissioner would be very pleased to publish in the Scottish Press the designs when finally accepted.

On a later occasion Mr. Wedgwood Benn informed Mr. Hogge that though the conditions of the competition had not yet been settled, the present intention was that it should be an open competition. It was intended to adhere to the Calton Prison site for those buildings. Another site for the buildings at St. James Square had been considered.

#### Western Approach to London.

Mr. Masterman, replying to a question by Mr. Barnes, stated that the Road Board had not yet received from the highway authorities concerned any intimation of their intention to proceed with the scheme of a new western approach road to London towards which the Board had intimated their willingness to contribute. No further steps had therefore been taken. The question was prompted by Mr. Barnes's desire to know if the estimated cost, viz., £1,750,000, should be borne by those who would benefit from the rise in land values.

#### Vacant Land in London.

Mr. John Burns, in reply to Mr. Outhwaite, said he understood that it had been estimated that the total area of uncovered land in the Metropolis was 12,600 acres, but he was not in possession of the particulars upon which this estimate was based or of information as to the ownership (private or public) of the land.

## CLERKS OF WORKS' ASSOCIATION DINNER.

The Incorporated Clerks of Works' Association held their thirtieth annual dinner at the Holborn Restaurant on Saturday evening last, when the chair was occupied by Professor Reginald Blomfield, A.R.A. Among those present were Mr. William Woodward, Mr. Edwin T. Hall, Mr. George Hubbard, Mr. A. W. S. Cross, Mr. H. Chatfield Clarke, Mr. A. Fincham, and many others.

Mr. W. Lake proposed the toast of "The Architects and Surveyors," to which Mr. William Woodward replied on behalf of the architects, paying a tribute to the fine qualities of Professor Blomfield for the distinguished position which he held. They might, he continued, ask themselves the question: What is an architect? The dictionary definition was "a master builder, a surveyor of the building." He had seen a rather more ambitious definition on a board recently. After a certain name came the following words: Auctioneer, surveyor, land agent, and architect; and the inscription wound up with "Estimates given, Funerals furnished."

Mr. H. Chatfield Clarke, replying for the surveyors, showed that the seventeenth-century conception of the surveyor was different from that of the present day. The minutes of the Fishmongers' Company for February, 1667, contained the following: "The Court ordered their carpenter to have a note of all the Company's houses lately burnt, and where they were situated, that he might look to the foundations of them and see that the Company were not wronged by the building of walls on such foundations as party-walls, when the same belonged only to the Company." Even in those days they were troubled by the party-wall question. Mr. Clarke concluded with a plea for a simplified constitution of building authorities, on the lines of the Scottish Deans of Guild, who passed all plans and considered all the various points they involved.

Mr. Jos. Davies proposed the toast of "The Worshipful Company of Carpenters," acknowledging the very valuable assistance which they gave to the Clerks of Works' Association.

Lieutenant-Colonel A. C. Preston replied, assuring the Association of the Company's continued help in the future.

Mr. C. W. Denny proposed the toast of "The Builders," to which Mr. Roland Holloway replied.

Professor Blomfield, proposing the toast of "The Incorporated Clerks of Works' Association," said the clerk of works was a priceless jewel to the architect, though, unfortunately, he was not always so regarded by the builder. The clerk of works needed both tact and temper, for he often found himself between the devil and the deep sea. There was the architect and the builder—but he was not going to assign the respective parts. The clerk of works, however, could be a great help to the builder as well as a sort of building policeman for architect and employer. The Clerks of Works' Association, he saw, was of a certain antiquity, and it also demanded a certain antiquity of its members, for no one was admitted until the age of thirty-five and in possession of the certificate of the Carpenters' Company. He felt it a great honour and pleasure to be with them that evening.

The President (Mr. R. H. Henley), in reply, having described the objects of the Association, and having thanked the Carpenters' Company for their assistance and

the use of their premises and valuable library, appealed to all architects to apply to the Association when in need of thoroughly capable and trustworthy clerks of works.

Mr. J. Tegg then proposed the toast "The Chairman," observing that Professor Blomfield's works in brick, stone, and print would live long after they all had gone.

Professor Blomfield briefly replied.

## THE A.A. HOUSE LIST, 1913-14.

At last week's meeting of the Architectural Association the nominations for officers and Council for the next session were announced as follows: President, V. T. Curtis Green; vice-presidents, H. Austen Hall and Maurice E. Webb; hon. treasurer, Arthur Keen; hon. secretary, C. Leonard Elkington; hon. librarian, W. C. Newton; hon. editor "A.A. Journal," Alan Slater. Ordinary members of Council: Past-president, Gerald C. Horsley; H. M. Fletcher, P. Cart de Lafontaine, F. C. Eden, Stanley Hamp, Alice Horsnell, Geoffry Lucas, F. Winton Newman, A. Gilbert Scott, A. G. Mackenzie, F. Dare Clapham, H. V. Brittan, V. T. Hodgson, L. Sutton Wood and E. B. Maufe.

## COMING EVENTS.

Thursday, February 20.

Architectural Association Camera, Sketching and Debate Club.—Miss Gertrude Brown on "To Baghdad through the Syrian Desert," at 8 p.m.

Friday, February 21.

Birmingham Architectural Association. Paper by Mr. M. P. C. de Lafontaine. Royal Sanitary Institute (Chadwick Publications).—Mr. H. Percy Boulton, M.Inst.C.E., on "Hygiene of the Home." 8.15.

Saturday, February 22.

Architectural Association.—Fourth Spring Visit, to Civil Engineers' new building (James Miller, architect) and a new Middlesex Guildhall (Gibson Skipworth, and Gordon, architects) at 2 p.m.

Monday, February 24.

Architectural Association.—Mr. Edwin Gunn, A.R.I.B.A., on "The A.A. Excursion to Shrewsbury and District, 1912," at 8 p.m.

Surveyors' Institution.—Annual Dinner, Hotel Metropole, 7 p.m.

Wednesday, February 26.

Manchester Society of Architects.—Mr. A. E. Richardson on "Theatres."

Edinburgh Architectural Association. Mr. Vernon Constable, A.R.I.B.A., on "Some Modern French Buildings."

Thursday, February 27.

Sheffield Society of Architects and Surveyors (Students' Meeting).—Mr. J. B. S. Gibbs on "The Work of James Gibbs."

Concrete Institute.—Mr. John A. Davey, M.Sc., on "Economy in the Design of Reinforced Concrete."

Society of Architects.—Mr. G. A. T. Middleton, A.R.I.B.A., on "Amiens Cathedral," at 8 p.m.

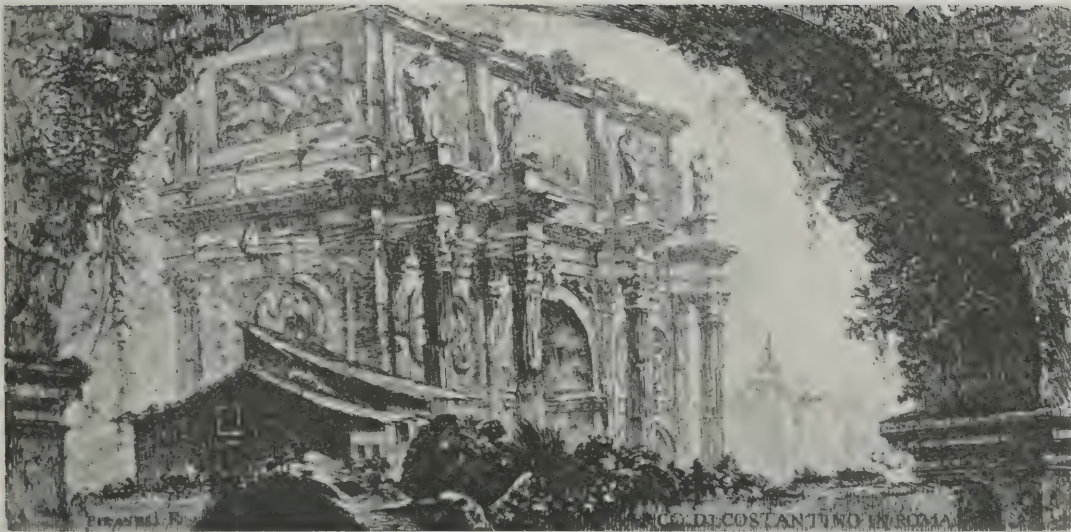


# THE ARCHITECTS' & BUILDERS' JOURNAL.

Wednesday, February 26, 1913.

Volume XXXVII. No. 946.

No. 22.



(From Piranesi.)



ST. ANNE'S CHURCH, ROYTON, OLDHAM. TEMPLE MOORE, F.R.I.B.A., ARCHITECT.

(See page 218.)



# THE ARCHITECTS' & BUILDERS' JOURNAL.

FEBRUARY 26, 1913.

CAXTON HOUSE, WESTMINSTER.

VOLUME 37. No. 946

## The Transience of Technical Planning.

NO contrast is more remarkable in architecture than the permanence of the planning for certain objects and the kaleidoscopic quick-change variety for others. The church and the home persist with astonishingly little change. It is still possible to worship in a temple a thousand years old; and even the modern goddess Hygeia does not condemn a house built five hundred years ago as absolutely unfit for human habitation. As for a hundred years in house-planning, it is nothing—many of us could hardly be induced to live in one that was not at least eighty years old; and the most of modernity that we require is a little up-to-date plumbing and a new kitchen range. But a school built ten years ago is absolutely obsolete, and the standard school-planning manual contemporaneous with it is chiefly valuable to an educational archaeologist or to a medical officer of health intent on showing that the ills of the present generation are directly attributable to the plans which it illustrated.

What can be the underlying cause of such a contrast? Why should education, nearly as ancient a practice as worship, be so unstable in its requirements? Without entering into the causes in the past, there is no doubt that the recent upheaval is directly due to the entry of a third party into the conspiracy; hitherto it has been a junta between the educationist and the architect; the new-comer is the medical man, eager to put into practice the new science of hygiene: there is thus a triangle of forces set up which cannot fail to pull in different directions until a condition of equilibrium is arrived at.

The year 1870, in which the School Boards were set up, saw the importation from Prussia of the elementary school plan, in which a central hall is surrounded by classrooms opening off it. The doctors, who now contribute to this plan nearly every ill from which a child can suffer, allowed its adoption without a murmur: they were still spectators, and had not yet entered the arena. During thirty years of unparalleled competitive activity, architects worked upon this model, and covered the face of the country with minute variations upon it. Never, except perhaps for branch libraries, has so much architectural thought been expended on the labouring of petty details, the whole profession in consequence suffering from an intellectual cramping. In order to provide a means of judging between hundreds of plans of equal merit, entirely artificial points, like those of a prize bull-dog, were invented—for example, the master's or mistress's supervision of the playground; and the successful competitor who, by splaying off an angle or dodging the shape of his playground, had outwitted his fellows and, when the school was occupied, that his master-point had been ignored.

It was not until the Congress of 1907 that this Prussian central hall plan, with its attendant wire-drawn niceties, was suddenly exploded by the medical cursors. Though architects are rather resentful of volcanic upheavals when these come from without, there can be no question that from their point of view

the new era was salutary, whatever it may prove to the children. Anyone who has watched these innumerable "central-hall" competitions, and noted the absolute hazard or the unimportant detail which has decided the selection of the winning design, must welcome a new age of experiment in the fundamentals of planning, which gives an opportunity for real vigour of invention and grasp of essentials to assert themselves over peddling manipulation of Chinese puzzles.

The central hall, once approved by School Board teachers and architects, has been condemned chiefly on the ground that by acting as a corridor it works badly in both ways, being liable to interruption from the classrooms, and, when used for musical drill itself, interrupting the quietness of the classes; it also prevents cross-ventilation of the classrooms. Natural ventilation by open windows is one of the features of the new era—a welcome return to simplicity. In the meantime scientists are not greatly helping matters by certain negative researches, in which they have been proving that carbon-dioxide is by no means so evil a gas as its reputation has implied, and that an absence of 20 per cent. of oxygen is not harmful to the healthy; indeed, their evidence tends to show that there is no reason why stuffy rooms are unhealthy, although the fact remains that they are.

The educationist's chief preoccupation is with the size of classrooms; during the past hundred years the number of scholars to be taught by one master has constantly been decreasing from the old days of the monitor and pupil-teacher system, when the master was little more than an overseer. The new tendency in elementary schools is to reduce the normal class to a maximum of forty, in spite of the additional cost which this will entail.

It is the province of the architect to gather together these different factors of doctor and educationist, and from them systematically to create a working organism: whether they are faddist theories of the moment is not his part to determine; what he is concerned with, however, is to produce a building which not only satisfies medical and educational theories, but which, while so doing, achieves some degree of seemliness and beauty. No slight task this, seeing that one theorist is so wrapt up in his pedagogy, and the other in his hygiene, that they often entirely neglect the enormous educational value of beautiful environment.

As to the practical solution of the problem on plan, there have been several put forward during the past year or two; natural cross-ventilation and intercommunication can best be obtained by means of clerestorey windows in the classroom walls over low corridors. If the latter are completely disconnected from the cloakrooms they form a reservoir of fresh air which can be made use of on occasion. The assembly hall, no longer necessarily central, is placed where it is easily accessible from different departments, but so that it need not be traversed to get from one to the other. The general result of these new arrangements is a greater dislocation of units, not necessarily entailing a more different problem for architectural composition.



tion; a general use of flat roofs will probably ensue, relieving the elevation of much of the worried fussiness of interminable gables.

As has been stated, the present revolution in school planning is rather a medically plotted than an educational one. If the Montessori system or the dramatic method becomes generally adopted for elementary education we shall have to devise something much more amazing than the substitution of a corridor for a central hall; the whole educational mechanism may be thrown into a melting-pot, and there is no knowing what shape the new casting may take—the school of the future may resemble a collection of miniature theatres or one of those architectural fancies with which Leonardo illustrated his cryptogrammic manuscripts. The architect, however, is never outpaced, and these new requirements and aspirations are the very essence of a living and energetic art.

P. A.

#### A Poor-Spirited Action.

THE Local Government, Records and Museums Committee of the London County Council are, we think, quite justified in pointing out how very regrettable it is that the Port of London Authority should have put up to public auction many objects of architectural interest in the area of old houses in the City which is about to be cleared for the erection of their new building. In our issue for January 29th we published some photographs of two eighteenth-century doorways that were included in the sale. These, with many other objects of equal interest, were disposed of to private buyers, and so have been lost to London. There were several other features that might have been retained for the London collections. A number of chimneypieces of Adam and earlier periods were included in the sale, and though some of them were clogged with numberless coats of paint and otherwise disfigured, the original work could be revealed with little trouble. One of these chimneypieces, a marble one of eighteenth-century date, realised no less a sum than £305, and we can only imagine that in this case the competing zeal of two rival builders was the reason for so large a sum. The graceful doorway in Crutched Friars and the hooded doorway in Catherine Court, both illustrated in our issue for January 29th, realised £52 and £145 respectively, while an eighteenth-century staircase rising up three floors went for £80—surely the best bargain in the sale. No doubt it was some of the objects we have referred to that were specifically asked for by the authorities of the Victoria and Albert Museum and the London Museum prior to the sale. The Port Authority's reply to the request was that they had decided on a public auction so as to afford the various museums the opportunity of securing any particular objects they desired—a very weak explanation, in the face of which we can only assume that, though a rich body, the Port Authority were intent on getting all they could out of the property; in which view, of course, public-spirited action received no consideration.

#### The Lumsden Case.

WE have already expressed the opinion that in the Lumsden case (in which increment value duty was charged on £125, not because the land involved had risen in value—admittedly it had not—but because the builder had made a profit by the sale of the building he had put up) the legal interpretation of the Act had gone beyond its author's intention. The Chancellor of the Exchequer, while the Finance Bill was in debate, gave to the builders definite pledges that increment value duty would only be chargeable on any portion of the increased value of the land, as it would be if divested of buildings and improvements. That pledge has been

broken, to the consternation of the entire building industry; which, however, will not suffer alone, since it is obvious that all enterprise is affected by the same operation. If profits, whether of builders or of dealers, are to be taxed under the guise of site values, then a crushing weight is imposed not only upon builders, but upon the entire community. Builders, therefore, in making a determined effort to get rid of this odious impost, may count on effective outside support; and not only is public opinion—solid and unanimous—at their back, but by this time the Government itself must surely have recognised the economic wisdom, to say nothing of the political prudence, of taking immediate steps to bring the Act into closer conformity with the dictates of common sense and the principles of equity. As Sir Herbert Bartlett put it when presiding at the annual dinner of the Institute of Builders last week, the taxing of builders' brains and capital, as legalised in the Lumsden case, is a great injustice which the powers that be must immediately set right.

#### The L.C.C. Architect's Department.

THE late Mr. Robson and his staff set an excellent example in the series of schools which were erected all over London, and we are glad to know that the staff which at present has charge of the architectural works of the Council is also a very competent one: evidence of one kind being afforded by the excellent new fire stations which have been erected during recent years. It is obvious that the work of the department must be enormous, and we are not surprised therefore to see that the Establishment Committee is bringing forward a scheme of reorganisation to cope with the ever-increasing bulk of work to be dealt with. The permanent staff now under the control of the architect consists of 1 chief assistant architect, 1 divisional architect (schools), 1 assistant divisional architect (schools), 7 assistant architects, 1 measuring surveyors, 9 principal assistants (including the chief clerk), 20 senior assistants, 74 assistants in the first class, 69 assistants in the second class, 23 minor establishment assistants, 6 non-classified assistants, 11 clerks of works, 2 boiler inspectors, and 3 clerks of works at weekly rates of pay; and in addition there are a large and varying number of technical officers who form what is called the unestablished staff of the department. This is a formidable organisation but still further increase in numbers, as well as improvement in status, is needed. The Committee proposes to meet the case by taking 21 members from the unestablished staff and adding them to the permanent staff. This will mean an increase in the cost of the latter by more than £7,000 a year, which would seem to be an immense addition, but when the deduction is made from the cost of the unestablished staff, the net increase is not more than £450 a year.

#### The Modern Problem.

PROFESSOR LETHABY, we fear, is being ridden by the demon of construction. In his recent paper at the Architectural Association he said:—"The weakness of modern architecture appears to me to be its insufficient grasp of scientific construction. Its method has been to work by custom, and in this wonderful age customs have so largely broken down. . . . Even customary work is not always well done; the ordinary house is not so well built as a railway engine. . . . The problem of modern architecture is to set itself to know, to improve, to perfect; when it does that the question of style will solve itself. No one thinks of building a racing yacht in the Spanish Armada style. The great architectural need is to make our buildings ship-shape." This is a clear, bold creed, but we do not think that in it lies the hope of modern architecture. It leads us back to the old position of the engineer and the functional expressionists whose tenets have been tried and found wanting.



## THE DEMOLITION OF SOUTHWARK BRIDGE.

It is somewhat anomalous that, while five of the road bridges which span the Thames between the Tower and Westminster are familiarly known, the sixth should remain to be discovered by the majority of Londoners. Yet such is the case of the bridge which crosses the river between Queenhithe and Bankside. Possibly its unobtrusive entry into the heart of the City accounts for its comparative obscurity, but, whatever the reason, it is certain that Southwark Bridge—which was closed to traffic last week, prior to its demolition—is not generally known. Yet, from the accompanying illustrations, it will be seen to be a far finer design than many other London bridges which are familiar to everyone.

It was in the year 1814 that John Rennie was appointed engineer-in-chief to the Southwark Bridge Company. Considerable opposition was made to the Act of Parliament for the construction of the bridge by the Corporation of London and the Conservators of the river, mainly on the score of obstruction to navigation. But the genius of John Rennie overcame the objections of the City Fathers; he realised that, as this was the narrowest part of the river between Blackfriars and old London Bridge, large arches might be adopted. Stone construction was out of the question, except for the buttments and startings, yet the theory of arched coussoir design was to be carried out in cast-iron.

Rennie submitted a design to the Corporation

which consisted of three cast-iron arches, the centre one being of 240 ft. span, with a versed sine, or rise, of 24 ft., and the two side arches of 210 ft. each, with a versed sine of 18 ft. 10 in. each, the piers being 24 ft. in width. This design was approved and embodied in the structure which is now about to be demolished. The iron castings were made at Rotherham in Yorkshire, and the general contract was given to Messrs. Jolliffe and Banks.

The unusual span of these novel arches caused much controversy in scientific circles; in fact, Rennie's calculations were questioned until Dr. Young, a well-known mathematician of the day, undertook to investigate them; the result being the complete vindication of Rennie's theories.

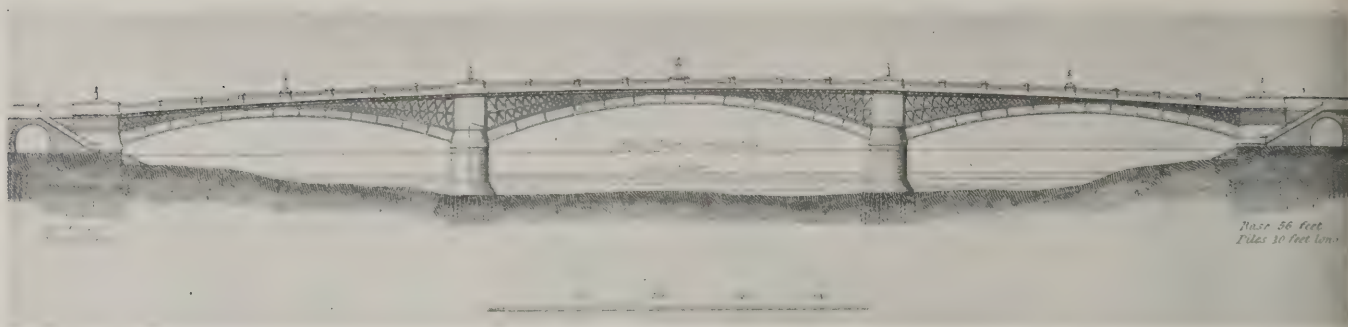
From an æsthetic standpoint the design of Southwark Bridge attains a similar high standard to that of Waterloo and London Bridges; even the cast-iron treatment is made to look its part and to harmonise with the architectural treatment of the pylons. Like most of Rennie's architectural essays, the theme of the design is Dorian, mainly because the detail of the Greek Doric entablature readily lent itself for interpretation in Cornish and Scotch granite. The severe character of the lamp standards, together with the restrained design of the parapet, would serve as an index to the period of erection if no other data were forthcoming.

Nothing very definite seems to have been attempted in the way of dignified buildings to form



*Photo: Architects' and Builders' Journal.*

SOUTHWARK BRIDGE: DETAIL OF RECESS AND LAMP STANDARD.



SOUTHWARK BRIDGE: ELEVATION.  
(From Britton and Pugin's "Public Buildings of London")

the approaches, which, with the exception of a respectable range of houses on the south-eastern side, were left to grow of themselves. One of the original toll-houses still stands, bearing the legend "Bridge House." The work of construction was begun on September 23rd, 1814, and the bridge was finally opened for traffic in April, 1819. The cycle of a century has scarcely been accomplished ere, to obtain an additional width of twelve and a half feet, it has been decided to demolish one of the most beautiful of Rennie's works. If we were certain that the new bridge which is to take its place would possess superlative merit as an architectural design, that fact alone would act as a palliative. But like most of the quixotic undertakings which are a sign of the times, the design of the new bridge is carefully kept from the public gaze.

Messrs. W. Arrol and Co. are the contractors for the demolition, which is being preceded by the erection of two covered foot-bridges. The contract sum for the new bridge, which is expected to take three years and a half to complete, is £278,148. It will have a width of 55 ft. between parapets, and the carriageway will accommodate four lines of traffic. The gradients, too, will be much easier, the crown of the bridge being reduced by about 6 ft. The new bridge will be a five-arch steel structure, Mr. Basil Mott, the City Engineer, having been responsible, we believe, for the design.

## AN OXFORD SCREEN,

THE screen illustrated on page 223 of this issue is at the west end of the chapel of All Souls' College, Oxford. It was erected in the eighteenth century, and the design is attributed to Sir John Thornhill, the painter, but this we should very much doubt. It is more likely to have been designed by one of those many capable architects of the eighteenth century of whom we have no record.

## ST. ANNE'S CHURCH, OLDHAM.

MR. TEMPLE MOORE is generally admitted to be the most successful living exponent of English Gothic. No matter what the scale of a building may be—whether large, like All Saints', Tooting Graveney, or comparatively small, like St. Anne's, Oldham—Mr. Moore's work is invariably distinguished by skilful composition and refinement in detail. St. Anne's Church, Oldham, of which we reproduce some photographs on pages 214 and 227, is a characteristic example of Mr. Moore's treatment of the smaller type of church. The exterior is at present incomplete, the tower still remaining to be added. The pyramidal timber roof shown in the photographs is purely a temporary covering. We regret that the architect does not desire plans of the church to be given.



SOUTHWARK BRIDGE: VIEW FROM SOUTH SIDE.

Photo: Architects' and Builders' Journal.



## THE SMALL SUBURBAN HOUSE COMPETITION.

WE are pleased to find that great interest is being taken in the competition we are promoting for plans of a small suburban house. The deficiencies of the usual plan are obvious, and the need for houses more suited to the requirements of the small middle-class household is generally recognised. It is in the hope of effecting some improvement in this matter that we have instituted the present competition, full particulars of which were given in our issue for last week. The premiums offered are 5, 3 and 2 guineas for the designs placed first, second and third respectively. Drawings have to be sent in by March 19.

*Replies to Enquiries.*

It is, of course, almost impossible to frame a set of conditions which do not give rise to enquiries as to certain details, and we find that we have not escaped the usual experience. In drawing up the conditions we endeavoured to make our intention as clear as possible, but a few correspondents raise some queries, which, for the benefit of all, are answered below.

J. S. P. (Belfast) writes: "(1) No w.c. is asked for on the ground floor. I presume such is not required. (2) Is the independent boiler to use coke fuel or is it a gas circulator? (3) Are the walls to be in black? (4) Are elevations required? (5) Are drawings to be on stiff boards or rolled in tube?"

The answers to the above queries are as follows:—(1) A w.c. is not required on the ground floor. (2) The independent boiler is to burn coke or any other fuel: it is not gas-heated. (3) Walls are to be blacked in. (4) Two plans and a section only are asked for: *no elevations are required*. (5) The drawings should not be mounted, but sent rolled in a tube.

A. S. (Sutton) writes: "(1) Is the house supposed to be for a London suburb and may any material be used for the supposed construction? (2) What is the compass of the site? (3) May an elevation be sent at competitor's option?"

In reply to the above: (1) The house is intended to be in any urban district—in the London area or in the provinces—and to be built in accordance with the usual Urban Model By-laws. 9 in. brick walls are assumed. (2) A note was appended to Condition No. 8 stating that "it should be borne in mind by competitors that the object of the competition is to improve the type of house which is commercially possible under existing conditions. . . ." Under existing conditions suburban houses cannot be set down on their plots so as to secure ideal aspects for the rooms, but have to be adapted to the roads in the best way that is possible, and as roads are set out in so many directions we have thought it advisable not to stipulate the aspects of the site on which the house is projected to be built. (3) No, we do not want elevations. Possibly, at a later date, we may institute a competition for elevations conforming to the first-premiated plans.

Mr. S. B. K. Caulfield, F.R.I.B.A., writes: "The principal object of this excellent competition you have set on foot being to economise, it is a pity to ask for a two-ton coal cellar. There is an association that anybody can join and get coal delivered a ton at a time at 'summer prices' all the year round. A separate cellar should be provided for boiler fuel, so I suggest two cellars to take a ton each. I think you are wrong in asking for the boiler cylinder to be placed in the linen cupboard. The great heat is almost sure to rot sheets, etc., at the folds, assuming that the linen is stored in the

cupboard. A small coil is sufficient for airing purposes. Also, the best system I know has the cylinder just over the boiler. A very good plan is to enclose the cylinder in a Uralite-lined cupboard: then there is always a place where wet boots, clothes, etc., may be quickly dried."

We are obliged to Mr. Caulfield, as an architect with considerable experience of house-building, for his practical comments. As regards the coal question, we assume that the association to which he refers is the Associated Coal Consumers, Ltd., by belonging to which no doubt a considerable saving in fuel cost can be effected: but it can hardly be considered that suburban occupiers, as a body, get their coal in this way. More often than not they buy from a local merchant, and it was in order that a good stock might be bought at a time when prices are low that we stipulated for a cellar holding at least two tons. The division of one kind of coal from another in the cellar is a very simple matter. As regards the box-room cupboard, linen is not intended to be stored in this, but only to be aired, for which purpose, as Mr. Caulfield points out, a coil would suffice as well as a small boiler. Competitors are asked therefore to bear this detail in mind. The cupboard for wet boots and clothes may effect an expeditious drying, but can hardly be considered a good arrangement, more especially in the case of boots, as wet leather is best dried slowly.

T. G. T. (Uckfield) writes: "Condition No. 5 requires one of the bedrooms to be large enough to accommodate two twin beds. Does this mean two beds 5 ft. wide, four single beds 3 ft. wide, or only two single beds?"

"Two twin beds" means two single beds placed side by side; single beds being generally 3 ft. wide.

E. R. D. (Northampton) writes: "(1) A piece of ground must be left at the side of the house for the access of tradesmen, etc. Will you kindly specify the minimum width of such passage-way? (2) As the Urban Model By-laws vary somewhat in different districts in regard to the heights of rooms, would it not be as well to specify minimum heights?—an important item. (3) Is the total cost £450 at 6d. per foot cube to include boundary fences and drains, or does it mean for the house only? (4) Drawings are required to be in plain black and white with name and dimensions of each room written in pencil only. Does this mean that the drawings are to be in Indian ink, with name and dimensions written in pencil, or the whole to be in pencil? (5) Should the sitting-room be a large room and the dining-room a small one, or vice versa? (6) Is a copper required? (7) Could not a hot-water cylinder be arranged in a separate linen cupboard away from the box-room, if found to be more convenient?"

In reply to the above:—(1) The width of the side passage-way must be left to each competitor to settle for himself. (2) We recognised this question of the height of rooms when drawing up the conditions, but did not consider it best to specify a minimum height. The allowance varies under by-laws in different districts, but 8 ft. 6 in. may be taken as a fair average. (3) £450 is to cover the cost of the house only. (4) "Plain black and white" means of course that the drawing is to be in ink, the names and dimensions of the rooms being written in pencil only. This condition was made with the two-fold object of saving competitors the trouble of doing any lettering, and to allow us to put lettering of a uniform character on those drawings which we decide to reproduce. (5) The relative sizes of the rooms is left for competitors to settle. (6) No, a copper is not required. (7) The airing cupboard must be in the box-room.



## HERE AND THERE.

LAST week a page of condensed writing enabled me to cover 350 of the 600 years of architectural biography under review. That brought us to the end of John Webb's career. Pursuing the same swift theme, the next name we come upon is the great one of Christopher Wren. And here we have at hand so much material, including "Parentalia," that it is perplexing to know what may best be brought within the scope of this casual survey. Taking all into account, I would emphasise just two of Wren's characteristics which it is well not to lose sight of—the combination he displayed of original scientist and practical inventor, and the rare qualities that warrant for him "the grand old name of gentleman." Turning to the former, and setting aside his achievements as an astronomer and a geometrician—he became Professor of Astronomy at Gresham College when he was twenty-four only, and was conversant with the law of gravitation before Newton proved its existence—let us look at the list of his inventions. First, he devised a weather-clock, comprising a revolving cylinder and a recording pencil; likewise a self-registering thermometer, and instruments for measuring the rainfall and the amount of moisture in the air. He was largely responsible for the use of the barometer as a practical instrument. He devised an exceedingly simple form of level, having probably felt the want of such an instrument in his survey of London after the fire. He contrived an ingenious deaf-and-dumb language. He invented means of making drawings of microscopic objects, of purifying and fumigating sick rooms, of transfusing the blood from one animal to another, of planting corn equally and without waste, and of providing fresh water at sea. Confronted with the herculean task of clearing away Old St. Paul's, he experimented with gunpowder and soon devised a blast that shattered the great piers. At this, however, the citizens became alarmed, and implored that all further use of gunpowder should be prohibited; whereat Wren devised a battering-ram—an iron-pointed mast, 40 ft. long, which, with thirty men pulling at it with ropes, successfully demolished the masonry. Throughout his whole career we have the curious spectacle of a mind that could venture into the most abstruse speculations and at the same time could seize upon ideas thus unfolded and turn them to practical account—he was almost certainly the first in England to apply the methods of scientific investigation to the laws of structure. And when we come to survey Wren's personal character, we may well echo the words which Isaac Barrow wrote of him as a young man—"one of whom it was doubtful whether he was most to be commended for the divine felicity of his genius as for the sweet humanity of his disposition"—an estimate which posterity has accorded to this great man who, in a corrupt age, bore his shield untarnished to the last.

Wren was a great-hearted giant, but the architects among whom he strode were not pigmies. Hawksmoor possessed very considerable ability in architectural design, combined with a sound practical knowledge of building, while Vanbrugh, amateur though he was at first, progressively improved, and if he had lived longer would probably have produced some really great achievement. It is worth while to note, in passing, that all three men were of pleasant disposition, Wren grandly generous, Hawksmoor unaffectedly courteous and retiring, Vanbrugh magnificently amiable. Hawksmoor occupied a mid position and in his original work, as Professor Blomfield puts it, was always trying to translate Vanbrugh into terms of Wren. He having been co-worker with both, it is difficult to determine where Wren ended and Hawks-

moor began—as in the case of the towers of Westminster Abbey (though it seems probable that Wren made the original design and carried it out about half-way up, and that Hawksmoor finished the rest on his own account); and, similarly, in some instances it is difficult to determine how much Vanbrugh was indebted to Hawksmoor (he certainly owed a good deal to him, both at Castle Howard and Blenheim, while the credit for the Old Clarendon Press, usually given to Vanbrugh, more properly belongs to Hawksmoor). Three other things well to remember about Hawksmoor are, that he designed at least six of the fifty new churches in the City (including one of the most original churches in London—Christ Church, Spitalfields); that he started the fashion for large porticoes to churches; and that he did the earliest piece of Gothic revival work, in the pie-crust quadrangle of All Souls College. Vanbrugh was a wit in an age of wits, and must have been a delightful personality. As an architect, however, he erred grandiloquently in doing the exact opposite to what Bacon tells us is the essence of house-building. We are bound to recognise the splendid exterior effect of a pile like Castle Howard, nor can we fail to be impressed by the sheer mass of Blenheim, but when we remember that the biggest room in the latter is only 34 ft. by 25 ft., we begin to understand what Voltaire meant when he said that if the rooms were but as wide as the walls were thick the chateau would be convenient enough; and in the same way, we can appreciate the feelings of the visitor who, having been shown over Blenheim for the first time, turned to Marlborough and asked him where he lived. "Lie heavy on him Earth, for he laid many a heavy load on thee" was, therefore, a very fitting epitaph, though it was Abel Evans who wrote it, not Swift.

More than half my allotted space has now been filled, and yet we are only at the first quarter of the eighteenth century: hence the necessity to "speed up." Thomas Archer then—a pupil of Vanbrugh—we will pass by with the bare comment that the four towers of the much-ridiculed St. John's Church, Westminster, formed no part of the original design, but had to be added to balance the structure, which began to subside soon after work was commenced. James of Greenwich, for his talents, is worthy of more attention, but we must content ourselves with remarking simply that he disputes with Hawksmoor the claim to have been the first to introduce big porticoes as "frontispieces" to churches—St. George's, Hanover Square, being, of course, his great example. Colin Campbell I propose to neglect; he was a Scotsman who, like many of his countrymen, came south to seek his fortune, and is better remembered for "Vitruvius Britannicus" than for his buildings. With him, too, begins the dilettante era. William Kent offers us a little better material. A Yorkshireman, he commenced humbly, but managed to do so well in London that he left a fortune of £10,000. To me he has always seemed a very dull architect, though in the Horse Guards it must be admitted that he really did a sound piece of work, free from the banalities that disfigure most of his designs. It is not until we come to James Gibbs that we find a first-rate architect once more. Gibbs, too, it may be noted in passing, came from the North—from Aberdeen—which fact leads one to ask why it is that we have so often to wait for a Scotsman before we get the big thing. With Gibbs's work all architects are familiar, and right good work it is: St. Mary's-in-the-Strand—his first attempt in church-building—and the Radcliffe at Oxford being his best examples.

UBIQUE.



## CORRESPONDENCE.

Editors disclaim all responsibility for the statements made or opinions expressed by correspondents.

Correspondents are asked to be brief and to write on one side only of the paper.

"The Vista."

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—In the notice of "The Vista" under "Here and There," Feb. 12th, an instance of heterophemy occurs in the suggestion that "The Vista" is "an organ of the Glasgow Technical College." As a matter of fact, "The Vista" is published under the ægis of the Glasgow School of Architecture Club, and has no connection with the Royal Technical College (in which certain of the school's classes are held), except that the Director of the college is one of our subscribers.

H. L. HONEYMAN.

Glasgow.

(Editor of "The Vista.")

[Our contributor "Ubique," to whom Mr. Honeyman's letter has been handed, makes the following reply: "'Heterophemy' drove me to seek 'first aid' in the dictionary, where I find this definition: 'The saying or writing of one thing when another is intended, sometimes from mental disorder.' I abjure the word and its application, and devoutly trust that Mr. Honeyman was unaware of the deadly sting which the definition carries in its tail."—EDS. A. AND B.J.]

*Proposed L.C.C. Regulations for Reinforced Concrete.*

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—The L.C.C. General Powers Act of 1909 entrusted to the Concrete Institute, amongst other bodies, the duty of criticising as necessary the proposed L.C.C. Regulations for reinforced concrete.

It was therefore somewhat disquieting to read the letter of the secretary of that institute, Mr. Kempton Dyson, condemning in such wholesale fashion the modular ratio ( $M = 15$ ) stated in those Regulations, and which affects every calculation for reinforced concrete.

It appears, however, that Mr. Kempton Dyson bases his opinion of the relative elasticities of steel and concrete, when acting in combination, upon tests on the two materials made separately—an approximate method which the French Commissioners discredited even when they adopted it, *faute de mieux*. More exact methods have since been used. It was soon seen that if we can locate the neutral axis in a beam under load by direct extensometer readings it is easy to determine the modular ratio of the two materials which by their joint action have placed the neutral axis where we find it.

Professor Talbot deduced a value for "M" by this means in his well-known 1905 tests at Illinois University, and in the experiments made by Professor Turneure (one of the scientists quoted by Mr. Kempton Dyson) at Wisconsin University in 1902-3, and in



PALAIS DE JUSTICE, BRUSSELS: COLONNADE ON PRINCIPAL FAÇADE. J. POELAERT, ARCHITECT.



the French Government Report the position of the neutral axis was measured and recorded, and the value of "M" can be readily ascertained from the particulars given. Other instances could be quoted.

But, after all, what does it amount to in practice? Quite a large reduction of "M" only reduces the calculated strength by about 10 per cent., whereas the result of deflection tests show that the neglected tensile strength of the concrete at working loads is operating to strengthen a beam by some 30 per cent. or 40 per cent. over what we calculate for; whilst the results of test cube crushings with good concrete generally show that the assumed ultimate strengths are very largely exceeded indeed.

It certainly seems, however, to be a matter for regret that the L.C.C. have not taken advantage of the authority given to them under the 1909 Act to determine by experimental research such points as the correct modular ratio for rich concretes, the effect of fixed ends upon deflection, and the strength of columns.

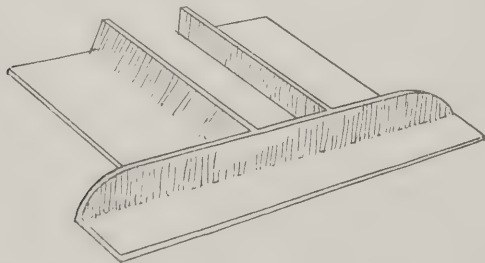
Perhaps it is still not too late.

PERCY J. WALDRAM.

*The Problem of Smoky Chimneys.*  
To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—I have been much interested in the correspondence which has followed my contribution on the above problem, in the course of which several interesting points have emerged, and I should be glad of the opportunity of a few further words on the subject. It appears to me that some confusion exists between easy passage of smoke and strong draught. The hock-bottle formation advocated by Mr. Collard is that usually found in old open chimneys, which in calm weather, when the smoke lazily rolls upward and nothing external impedes its progress, act perfectly, but have little draught (properly considered), and readily allow down-blow in gusty weather. This method I would describe as affording an easy passage but not a quick pull, such as is given by the arch-gathering shown by your correspondent "L. E. W.," which achieves a similar object to the iron fireplace lintel mentioned in my original notes, and of which I now append a sketch. This useful article, obtainable in all sizes at the cost of a few shillings, serves the double purpose of chimney bar and gathering.

The size of flues I believe to be fully as important as Mr. Collard suggests, though of course the raging draught created by a very small flue makes coal consumption excessive, and wastes heat—both, however, lesser evils than a smoky chimney, and excusable in



obstinate cases. Conversely, a 14 in. by 9 in. flue to a kitchen often reduces over-strong draught. His point as to modern grates requiring more frequent chimney sweeping is a sound one. I can say positively that the flat baffle shown in my Fig. 4 has proved successful in the circumstances named. The only suggestion I can offer in explanation is that the flat table at the foot of the straight flue holds up the column of air when down-draught attempts to enter. As to patent pots, prevention is better than cure, and I doubt whether the best of such contrivances will effectually cure a flue really badly designed. They do, however, often turn the scale when success or failure hangs in the balance.

Mr. Percy May's sketch was interesting. I have seen a contrivance on a Shropshire manor house, in the form of three stone spouts projecting from the base of a three-flue stack, for which I could only assume similar intention.

London, E.C.

EDWIN GUNN.

## OUR PLATE.

THE detail of sculpture on the Opera House, Paris, reproduced on the Centre Plate in this issue, the sixth example in the series which we have been publishing. It occurs at either end of a curtain wall that rises above the front block of the building in which position it has an admirable effect. We have already commented several times on the bold character of Garnier's detail, and there is therefore no necessity for any further description in the present case.

## MODERN SMALL HOUSES.

AS the eighteenth example in this series we illustrate a house at Hook Heath, Woking, which the architect, Mr. Horace Field, has built for himself. The disposition of the rooms on the ground floor is shown by the plan; the study, it may be mentioned, is an addition. The walls are rough-cast finished a dull tone, and the roof is thatched, plaister crowns covering the points of the gables, while over the entrance gable is a peacock made of straw.

## R.I.B.A. PROBLEMS IN DESIGN.

ON page 225 we reproduce another of the designs for a colonnaded screen recently approved for Subject VI. (a) by the Board of Architectural Education. This is by Mr. A. F. Kaltenbach. The conditions stated that the screen was to be 100 ft. in length, joining two wings of a public building 60 ft. in height, with two carriage entrances through it. Shade drawings were required to  $\frac{1}{4}$  in. scale, with 1 in. scale details.

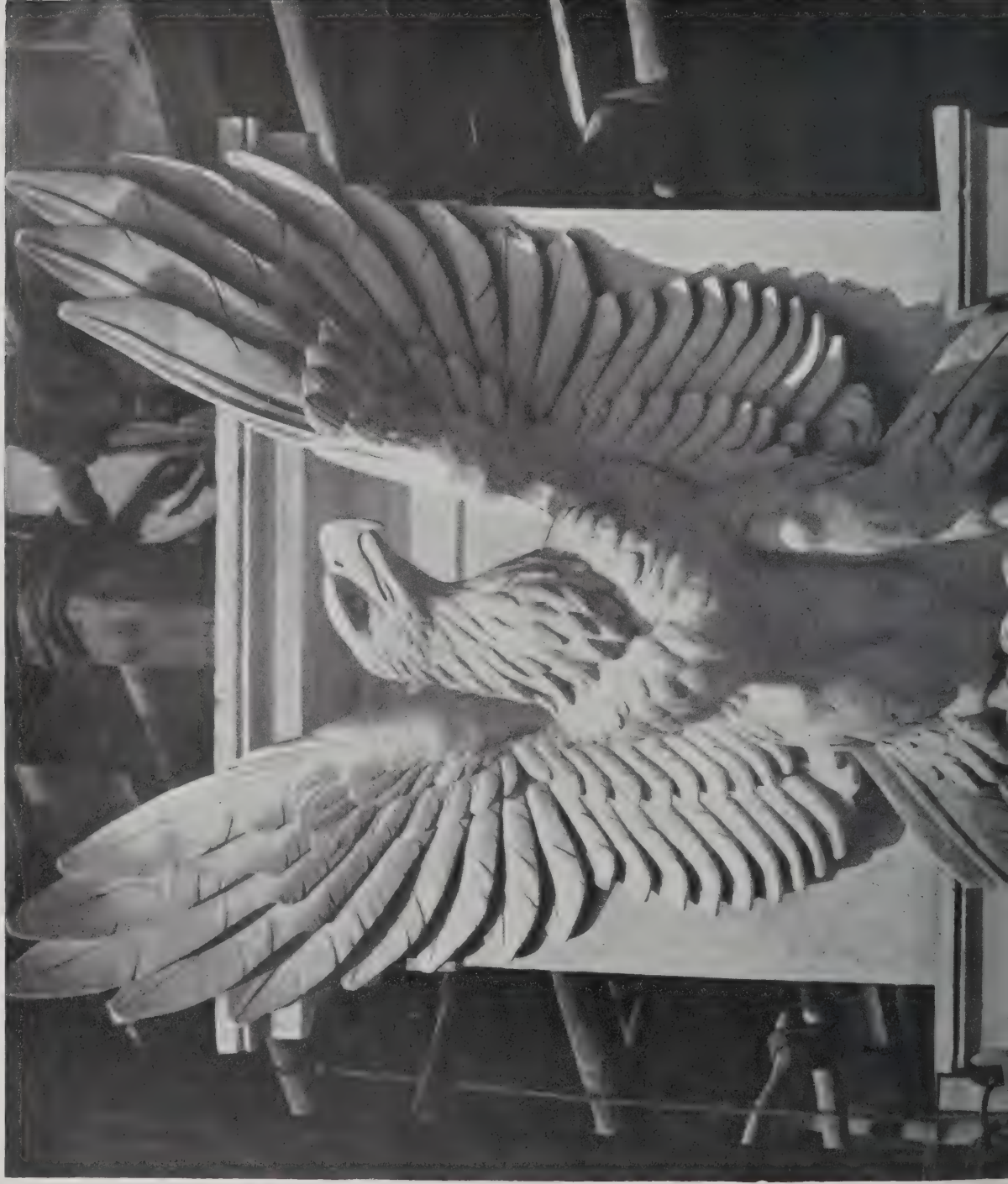
## WORKING DRAWINGS BY WELL-KNOWN ARCHITECTS.

WE publish this week a working drawing of the dome-shaped cupola that crowns the central tower of the Imperial Institute, South Kensington, which is 300 ft. high. The walls of the tower are built in hard brick in cement (faced with Portland stone), and vary in thickness from 9 ft. to 2 ft. 3 in. The tower is utilised to provide accommodation for various water tanks and storage rooms. The roof of the cupola is framed up in timber, and is constructed with eight half-principals, spaced so as to radiate towards the centre of the tower, the curvature of the dome being formed by means of a type of queen-post truss framed on the back of each principal rafter. 7 in. by 5 in. purlins connect these principals together and support the curved timbers to which the roof boarding is nailed. Where the cupola converges rapidly towards the top, additional small purlins are added to give greater support to the boarding. The roof covering is of copper, with rolls and welged joints. The timber structure of the cupola is adequately secured to the masonry of the tower with anchor bolts at the junction between the masonry and the timber roof being covered with copper flashing. An octagonal staircase, to provide access to the lantern, occupies the centre portion of the upper part of the tower. Mr. T. E. Collcutt, F.R.I.B.A., of Messrs. Collcutt and Hamp, London, was the architect.

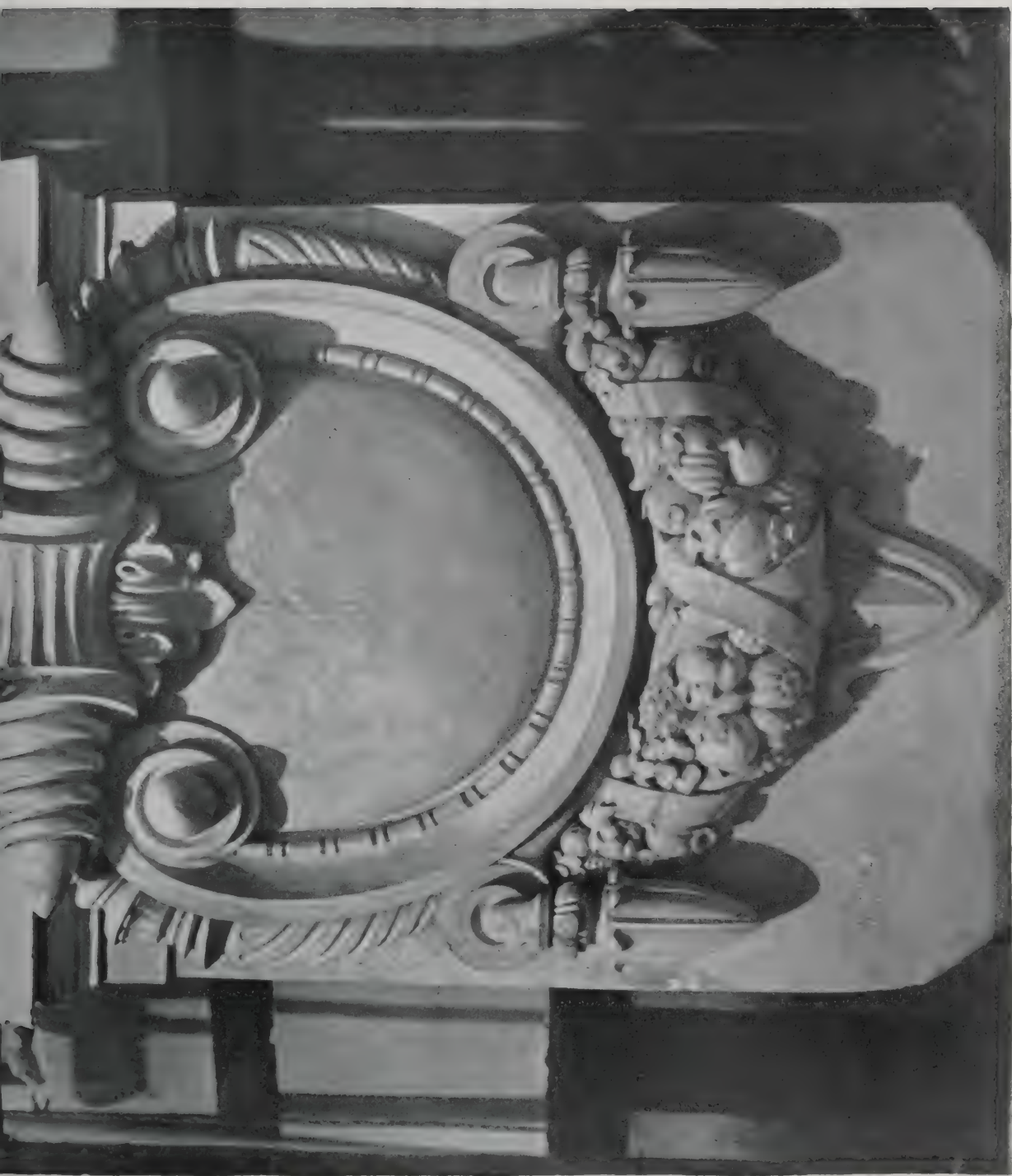




*Supplement to THE ARCHITECTS' AND BUILDERS' JOURNAL, Wednesday, February 26th, 1913.*



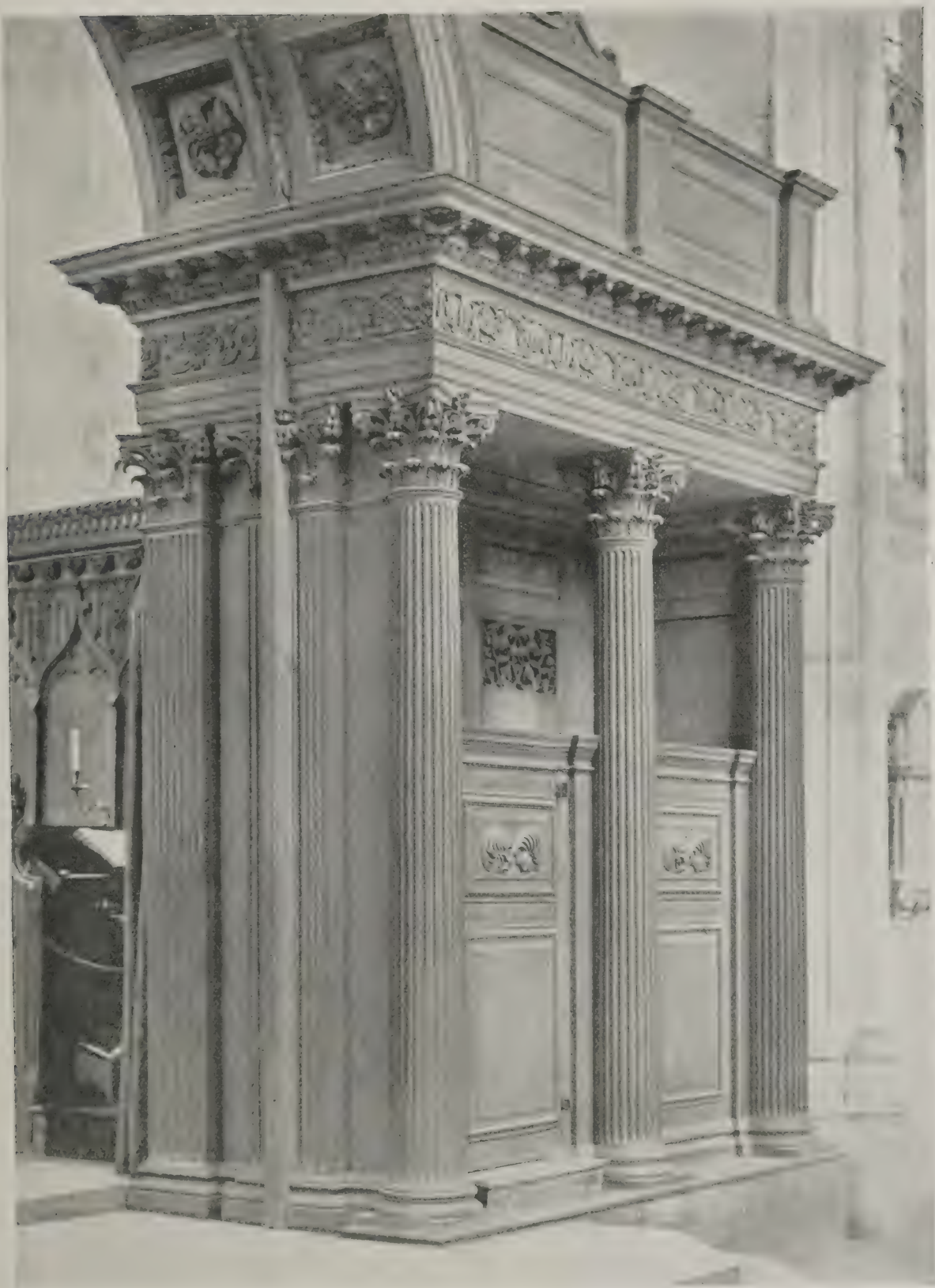




DETAIL OF SCULPTURE ON THE OPERA HOUSE, PARIS. CHARLES GARNIER, ARCHITECT.





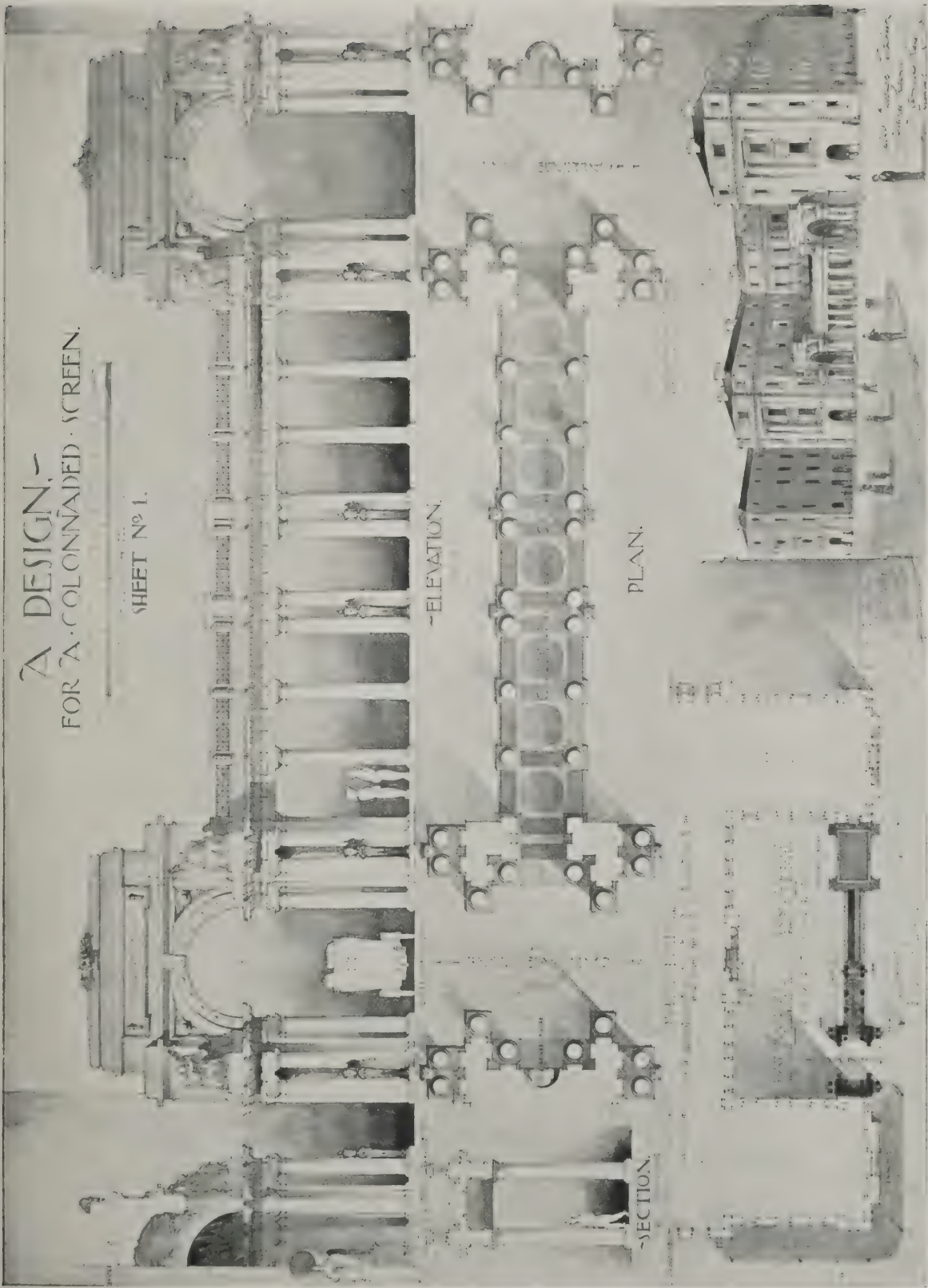


SCREEN IN THE CHAPEL OF ALL SOULS' COLLEGE, OXFORD.

(See page 218.)







TESTIMONIES OF STUDY FOR R.I.B.A. FINAL EXAMINATION: APPROVED DESIGN, SUBJECT VI. (a). BY A. F. KALTENBACH.

(See page 222.)







View from South-East.



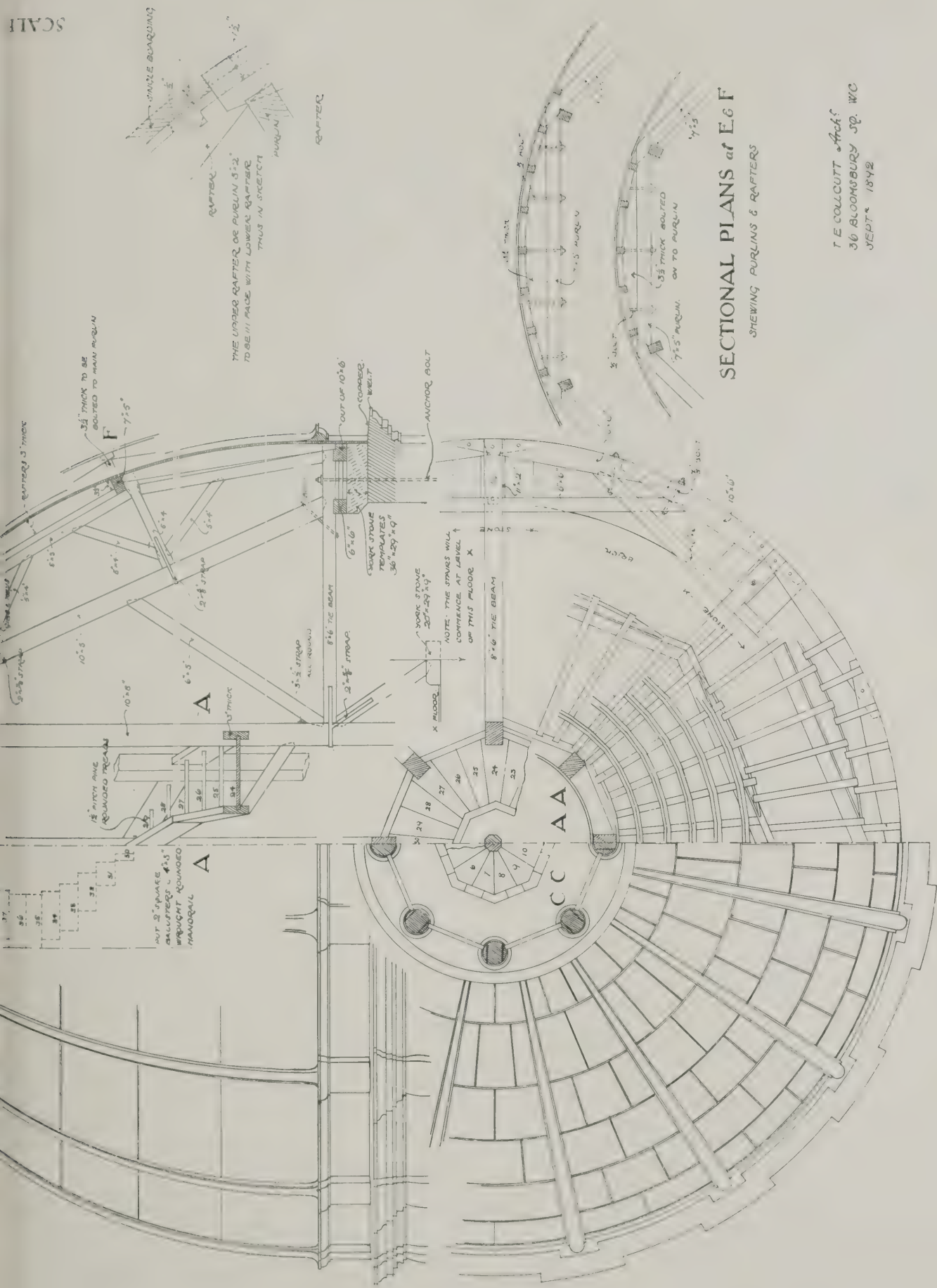
View from South-West.

ST. ANNE'S CHURCH, ROYTON, OLDHAM. TEMPLE MOORE. F.R.I.B.A., ARCHITECT.

(See page 218.)



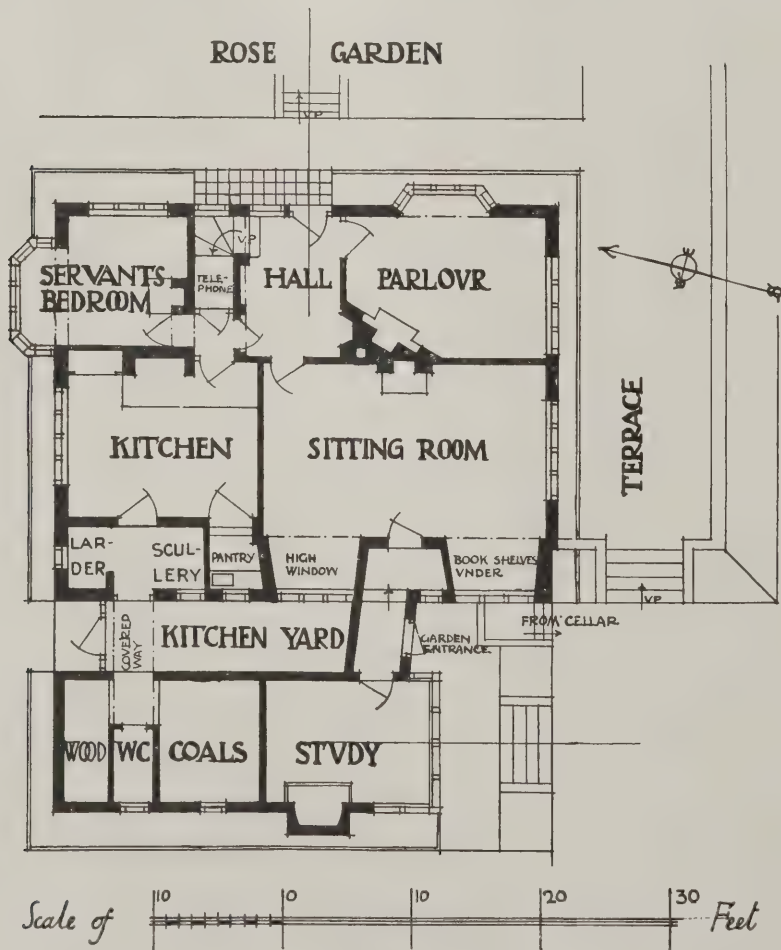




T. E. COLLCUTT ARCHT.  
30 BLOOMSBURY SQ. W.C.  
SEPT. 1892



View from South-East.



Ground-Floor Plan.

MODERN SMALL HOUSES.—XVIII. "SOUTH HILL," HOOK HEATH, WOKING.  
HORACE FIELD, F.R.I.B.A., ARCHITECT.



# CONCRETE AND STEEL SECTION.

## (MONTHLY.)

### *Experimental Research.*

Of the many sources of information which the reinforced concrete specialist, if he is wise, will not pretend to ignore, the records of experimental research are among those that are most deserving of close attention. Unfortunately these records are usually fugitive and are easily missed; and even when seen in periodicals, or received among the published transactions of some institution, they are but seldom preserved, while in the majority of cases in which they are saved from destruction, they are not systematically stored and cannot be found when wanted. Then there is the language difficulty. The professional man can seldom command sufficient time to keep up his French and German, and is therefore grateful for the rendering into English of foreign works of repute.

### *A Famous French Report.*

A case in point is "Expériences, Rapports, et Propositions: Instructions Ministérielles Relatives à l'Emploi du Béton Armé." This report has been much quoted, and extracts have appeared from time to time in various English books and periodicals, but a complete survey of the important work of the Commission on Reinforced Concrete appointed by the French Minister of Public Works was obtainable only in French. It has now been admirably translated into English. It makes a substantial volume, and in this form it is likely to exercise considerable influence on reinforced concrete study and practice in this country. The report embodies the results of the tests on experimental structures and of the tests to destruction of several of the structures of the Paris Exhibition in 1900, and the translator claims that "it is unique in the literature of reinforced concrete, containing as it does all the necessary scientific data, based on first-hand observations, for the design of reinforced concrete structures, with the observations thereon of a group of engineers of the widest and most mature experience obtainable."

### *Important Conclusions.*

The report was presented in 1906, which seems a long time ago; but, so careful and thorough was the work of the Commission that in the intervening years little or nothing has occurred to disturb their conclusions. Their experiments, extending over several months, showed the importance of the contraction which occurs in concrete during setting and hardening, and its influence on the stresses. They verified certain theories with regard to elasticity, resistance to compression, and other matters; and, altogether, they rendered most valuable service in placing the study of reinforced concrete construction upon a firmer and more rational basis. Each experiment is described in full detail, and many diagrams are included. Mr. Martin's translation has been well and carefully done, and he has added a bibliography of British and foreign publications.

"The Properties and Design of Reinforced Concrete": Instructions, Authorised Methods of Calculation, Experimental Results and Reports by the French Government Commissions on Reinforced Concrete. Translated and abridged by Nathaniel Martin, B.Sc., A.M.Inst.C.E. Lecturer on Reinforced Concrete, Royal Technical College, Glasgow. Pages xiv. + 110, 7 ins. by 9, ins., 8s. net. (Constable & Co.)

### *"Popularising" Reinforced Concrete Construction.*

Of all the very numerous manuals on reinforced concrete construction that have been produced within the past few years, not one has hitherto aimed at what may be called a popular exposition of the subject. Some have consisted almost entirely of calculations, others have laid most stress on material or practical details, but all have exacted, in their varying degrees, close concentration on the part of the reader. One might consult them for profit, but could hardly peruse them with any pleasure other than the stern joy that experts feel in wrestling with more or less tough problems of professional interest. It has remained for Messrs. Cassell to show that the subject can be popularised—that the data pertaining to it may be so assembled and marshalled as to form a readable book. For this reason it is hardly the kind of book which the more advanced specialist likes to consult. For him it is too bulky to handle and too diffuse in treatment. He prefers a manual in which the essential data are as far as possible set free from all redundancy. He would not, for instance, greatly appreciate the manner of presenting such information as this: "So closely was reinforced concrete identified with Monier on the Continent outside France that it was commonly known as the 'Monier system,' a term replaced in course of time, and, as other systems appeared, by the German-French 'eisenbetonbau' and 'betoneisenbau' (eisen [G.], iron; béton [F.], concrete; and bau [G.], building or construction—that is, 'ferro-concrete construction.'") Elsewhere the same writer rather labours the question of nomenclature. He is dissatisfied with the term "reinforced concrete" because it does not suggest the material employed with the concrete: "for example, at an early date concrete was reinforced with wood." Yet, a few lines back, he had lauded "ferro-concrete" as "one of the best terms yet introduced." It was with the express object of providing a generic rather than a specific name that the term "reinforced concrete" was adopted, and the only fault that can really be found with it is that it does not go trippingly on the tongue. It is less cacophonous and more determinate, however, than the shorter term "concrete-steel," and it holds good for every variety of reinforcement, past, present, or to come.

### *A Summarised History of Reinforced Concrete.*

More than six pages are occupied with "Historical Notes," in which about all that is known of the origin and progress of reinforced concrete construction is concisely summarised. The use of a sort of reinforced concrete by the Romans begins the recital, and we come almost immediately to the chains that were embedded in concrete by Wren at St. Paul's. We then arrive *per saltum* at the suggestion, in J. C. Loudon's "Encyclopædia of Cottage, Farm, and Village Architecture," that roofs might be constructed of cement in which were embedded iron tie-rods in the form of a lattice-work, the whole being cased with flat tiles; Joseph Aspdin having in 1824 patented his method of making Portland cement. Fireproof floors

constructed in Paris in 1840 were described in 1849 by Mr. G. R. Burnell, and by Mr. H. H. Burnell in 1854. These floors were constructed either on the Vaux or on the Thuasné system. In the former, round rods, placed close together, were hooked at each end on to a flat wrought-iron bar lying on its edge; in the latter, iron joists were employed, stirrups hanging from these and containing holes through which the round reinforcing rods passed. Plaster concrete was the material in which in each case the iron was embedded.

### *From Leconte to Kahn.*

Other outstanding dates are—1840, Leconte patents a ceiling slab; October 27th, 1854, William Boutland Wilkinson, a Newcastle-on-Tyne plasterer, patents a fire-resisting floor of concrete slabs reinforced with a network of flat iron rods or old wire ropes; 1855, Coignet patents floors; 1857, C. C. Dennett's arched floor of iron-and-concrete; 1867, H. Y. D. Scott patents a floor, the specification for which shows that the principle of reinforcement was understood, as there is a direct reference to tension and compression; 1867, again, Joseph Monier's reinforced concrete plant tubs. The energy of G. A. Wayss in getting Monier's system adopted; the patents of Lythgoe and Thornton (1868), and of Brannon in 1870, and of many others, are duly recorded, and the history is brought down to the present time, concluding with a short account of the Kahn bar.

### *A New Type of Manual.*

Undeniably interesting as a popular exposition of the subject, and supplementing rather than superseding manuals of the ordinary type, in which respects it is likely to render good service in familiarising the idea and promoting the adoption of reinforced concrete construction, the book is also of considerable practical value, especially to the beginner, who will conceivably be grateful for the laboured simplification which the specialist might impatiently resent. Even he, however, must admire the thoroughness with which the work has been compiled—for no phase of the subject has been overlooked—and in particular he will set considerable value on the large collection of illustrations, which are representative of almost every type and phase of the work, and, indeed, are rather too numerous. The book is very well printed; but the division of the page into two columns, with the ugly white channel between them occupying precisely the central position that is most favourable for the presentation of reading-matter, although a common enough arrangement, presumably adopted for the easy accommodation of small illustrations, is always regrettable. The book is provided with a serviceable index, in which, however, most of the entries are too curt, many of them consisting merely of unilluminating entries, such as proper names, without indication of their relevancy.

"Cassell's Reinforced Concrete." A Complete Treatise on the Practice and Theory of Modern Construction in Concrete-Steel. Edited by Bernard E. Jones, assisted by Albert Lakeman and a staff of specialist writers. Illustrated by 171 photographs and about 500 diagrams and working drawings. Cassell & Co., Ltd., London, New York, Toronto, and Melbourne. Pages xx + 398, 10¼ ins. by 8 ins., price 15s. net.



## SHEAR STRESS IN REINFORCED CONCRETE BEAMS.

BY PERCY J. WALDRAM, F.S.I., M.C.I.

ALMOST every patent system of reinforced concrete bases its excellence upon the scientific manner in which it deals with shear stresses, but directly the architect or engineer endeavours to elucidate this problem, he is told, in effect, that it is not a matter of the shear dealt with in text books, or in the R.I.B.A. Reports, or in the draft L.C.C. Regulations, but that it is a mystery which no one but an expert in reinforced concrete can presume to understand.

Like many another structural problem, the main principles of shear stress in reinforced concrete beams, as *understood and dealt with by the expert*, when viewed in the light of common sense, can be easily grasped by the exercise of a little intelligence, and this article is an endeavour to explain those principles in simple terms.

The first effort of loads and the upward reactions at the bearings of a girder is to shear it through bodily, as in Fig. 1. Under distributed loading the reason for the greater severity of this tendency in the vicinity of the bearings is obvious, because a length of girder AB carries more load than a length CD. If the cross section is sufficient to resist vertical shear, the loads and reactions change their direction and devote their energies to endeavouring to split the girder into horizontal laminæ; or, failing that, they create flange stresses. This can be readily seen on a girder composed of thin, unconnected strips (ordinary venetian blind laths will do). So long as these are free to slide laterally over each other, as in Fig. 2, the girder can, and does, fail by horizontal lamination, or, as it is called, horizontal shear. It possesses, in fact, only such strength as is represented by the sum of the strengths of the individual laths acting separately. Owing to the want of depth in each lath, this is extremely small, and the girder is of no practical use. If, however, the laminæ be secured against such failure by being firmly clamped together at the ends they can all act together and form one substantial, useful member

in which the resisted horizontal shear can operate as flange stress.

Horizontal flange stress is merely the result of these horizontal shearing tendencies being resisted by the lateral adhesion of the particles of the beam. Vertical shear can, however, only change its direction so as to reappear as flange stress by travelling in a diagonal direction across the web, and along this diagonal path it sets up diagonal tension and compression. It is not merely sufficient to guard against direct failure at the centre under excessive bending moment. The same loads and reactions which tend to tear apart the lower fibres and crumple the upper, could, if allowed to do so, split the beam into horizontal layers, tear or crumple it diagonally, or shear it bodily through vertically.

In Fig. 3, which shows the generation of the flange stresses in a lattice girder, these different effects of the same forces can be readily traced. In a rolled joist, which possesses no clearly defined posts dividing the web into panels, the stresses are probably similar, but intermingled. In a rectangular section, which has not even a clearly defined web, we can gather an instructive idea of the net result of such intermingling from the "force lines" which can be traced in bended glass and which take the general direction shown in Fig. 4.

Shear failure in a rolled joist generally takes the form of crumpling of the web (diagonal compression); in a plate girder with proper stiffeners it generally results in failure of the rivets between the web and the flange angles (horizontal lamination), or by diagonal cracking of the web plates due to diagonal tension; whilst a short wood beam under excessive load will sometimes be punched through at the bearings under the direct vertical shear.

These forms of failure are, however, so unusual that there is a danger of the shear stresses being overlooked in beams of reinforced concrete; but even a short experience in the testing of the latter to destruction will demonstrate the vital importance of ample provision against failure from shear.

The precise direction and nature of the shear stresses in reinforced concrete beams are still the subject of investigation, but it is obvious that horizontal stress is by no means the only active element of destruction. A beam can fail if the lateral adhesion between the concrete and the steel reinforcement is insufficient to resist the horizontal shear. Obviously, also, the horizontal shear and flange stress cannot come into existence save through the medium of diagonal tension, a stress which concrete is ill adapted to endure, and which is generally the first cause of failure.

*Distribution of Shear Stresses Along the Length of a Beam.*

*Spacing of Shear Reinforcements.*

It is generally assumed that the horizontal shear at any point along the length of a girder is equal to the vertical shear at that point and that the intensity of both is equal to that of the vertical shear acting over a cross sectional area of the beam equal to the internal lever arm, or "acting depth" ( $a$ ) multiplied by the breadth of the beam. Thus, a vertical shear at any section would be resisted by the lateral adhesion over a vertical plane of breadth

( $b$ ) of beam  $\times$  lever arm ( $a$ ), and the corresponding intensity of drag over a horizontal plane would be resisted by the lateral adhesion over a horizontal plane of  $b$  multiplied by a length of beam equal to the lever arm or  $b \times a$  as before.

When a number of stirrups are employed to resist the shear stresses a more convenient method of computing the average intensity of horizontal shear acting over any length of parallel girder, as A—B, Fig. 5, is to ascertain the difference in the bending movement between A and B. As this difference is the direct result of the horizontal drag, and as the flange stress at any point of a parallel girder is equal to the bending moment at that point divided by the lever arm, it follows that the increase in flange stress between A and B, or, in other words, the horizontal drag, or the horizontal component of the diagonal tension between those points, must be

$$\frac{BMB - BMA}{\text{lever arm.}}$$

equal to

If, then, an ordinary bending moment diagram be set up over a girder, as in Fig. 5, and the size of the stirrup or other shear reinforcement be determined for the shear stress represented by CB along any

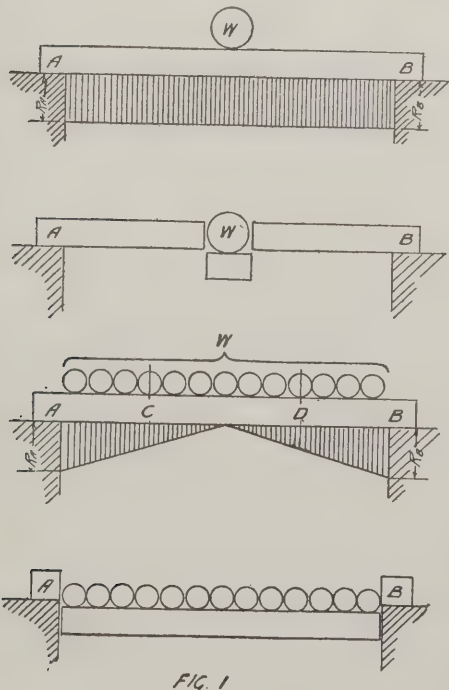


FIG. 1

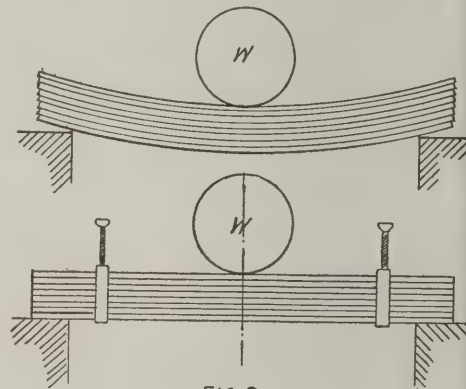


FIG. 2

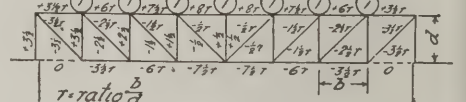


FIG. 3

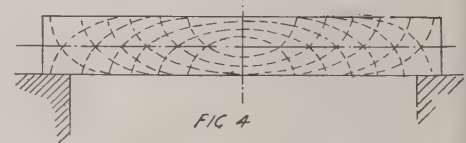


FIG. 4

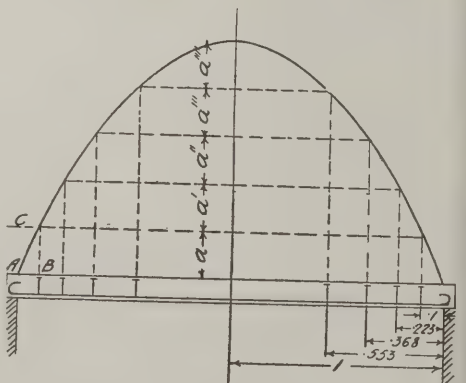


FIG. 5



given length of girder next to the bearings, the increased spacing of similar stirrups which will suffice to meet the decreasing shear towards the centre can be obtained graphically by drawing a central ordinate, setting up  $a'$ ,  $a''$ , etc., equal to distance CB, drawing horizontal lines across the diagram, and from where such lines cut the curve drawing vertical lines down to the girder.

When dealing with beams under distributed load only, it is still more convenient to calculate the average intensity of horizontal shear over a short length of girder next to the bearings and then obtain the spacing from Table A, which represents the lengths of horizontal chord subtended by such lengths of a parabola as are cut off by any number of equal vertical heights.\*

Table A Showing Spacing of Stirrups on Reinforced Concrete Beams on Two Supports under Uniform Distributed Loading.

Number of Stirrup from Bearing to Centre of Span.						
Distance from Bearing = $1/2 \times$	1	2	3	4	5	
	0.047	0.095	0.146	0.200	0.262	
	0.051	0.106	0.163	0.225	0.293	
	0.058	0.116	0.184	0.252	0.329	
	0.065	0.134	0.211	0.293	0.383	
	0.075	0.150	0.241	0.245	0.459	
	0.080	0.184	0.293	0.416	0.599	
	0.106	0.225	0.368	0.553	—	
Number of Stirrup from Bearing to Centre of Span.						
Distance from Bearing = $1/2 \times$	6	7	8	9	10	
	0.325	0.400	0.474	0.566	0.700	
	0.368	0.452	0.553	0.684	—	
	0.423	0.532	0.665	—	—	
	0.492	0.646	—	—	—	
	0.618	—	—	—	—	

For instance, if in a beam 20 ft. span it is found that a stirrup of certain dimensions will resist the shearing stresses over a length of 12 in. (1/2 of the half span) next to the bearing, then similar stirrups will similarly suffice for the varying shear stresses between the bearing and the centre if spaced at .1, .225, .368, and .553 of the half span from the bearing, i.e., at 1 ft., 2 ft. 3 in., 3 ft. 8 in., and 5 ft. 6 in. respectively.

#### Calculation of Horizontal Drag.

In a beam of span  $l$  in inches under a distributed load of  $w$  per inch run, the bending moment at the bearings as 0 and at a point  $x$  inches from the bearing it is  $\frac{wx}{2}(l-x)$ . Thus, at 12 in. from the bearing it would be  $6w(l-12)$ , and this increment of bending moment, divided by the lever arm, would represent the average horizontal shear along 12 in. of the span next to the bearings. For example, in a long slab 8 ft. span 6 in. effective depth reinforced with  $\frac{1}{2}$  in. bars at 6 in. centres and subjected to a total load of 180 lb. per square foot, what is the adhesion stress on the surface of the bars for 12 in. next to the bearing?

Load per inch run of slab 12 in. wide =  $w = 15$  lb.

Perimeter of bars in 12 in. width = 2 bars =  $\pi \times .5 \times 2 = 3.14$  in.

Surface of bars in 12 in. =  $3.14 \times 12 = \frac{2 \times 0.196}{72} = .005$

corresponding to a value for  $a_1$  of 0.89, or  $a = d \times .89$ , and  $l = 96$  in. + 6 in. = 102 in. The average intensity of shear on a horizontal plane of concrete would be:—

$$\frac{6w(l-12)}{d \times a_1 \times 12 \times b} = \frac{6 \times 15 \times (102-12)}{6 \times .89 \times 144} = 10.6 \text{ lb. per sq. inch.}$$

The skin stress between the steel and the concrete would be:—

$$\frac{6w(l-12)}{d \times a_1 \times 37.68} = \frac{6 \times 15 \times (102-12)}{6 \times .89 \times 37.68} = 40.3 \text{ lb. per sq. inch.}$$

#### Distribution of Horizontal Shear over Cross Section of Beam.

A brief consideration of what takes place in a laminated beam will show that any layer must be capable of picking up and transmitting to the body of the section the horizontal shear upon itself, and also the drags transmitted to it from the layers lying between it and the outside edge. The inner layers near the neutral axis have therefore to sustain more horizontal drag than those nearer the top and bottom surfaces.

It can be shown that the diagram of distribution of horizontal shear stresses over the cross section ABCD of a rectangular homogeneous beam is a parabola, as shown in Fig. 6 (a).

The height at the centre of a parabola is  $1\frac{1}{2}$  times the height of a rectangle of the same area on the same base, and the intensity of horizontal shear indicated by EF is 50 per cent. greater than the average intensity obtained by dividing the shear over the cross section ABCD.

Horizontal shear in a girder of reinforced concrete can cause either complete lamination between the particles of concrete or separation between the concrete and the steel rods. The first form of injury is most likely to occur in T sections between the web and the table, a plane

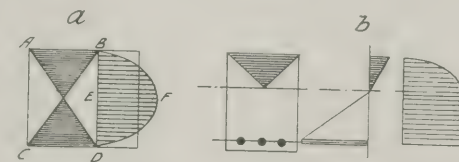


FIG. 6

which is frequently weakened by the practice of casting all the ribs first, and then floating on the slab after the ribs have partially set.

Many authorities assume that the distribution of shear stresses over the cross section of a reinforced concrete beam is such as is indicated on Fig. 6 (b), which indicates a constant adhesion drag at all parts of the cross section between the neutral axis and the reinforcement, the logical result of the assumption that the concrete takes no tensile stress. But the results of deflection tests show that the concrete does take some of the tensile stress, whether we trust to it or not. If it so acts in tension, then the distribution of horizontal shear upon it cannot be constant, but must more nearly approach the conditions which obtain in a homogeneous beam (Fig. 6, a), relieving the adhesion stress on the reinforcement, but at the expense of the inner layers near the neutral axis. In the case of T beams where the neutral axis falls at or near the junction of rib and slab it would appear to be only prudent to consider the horizontal shear on that plane as being 50 per cent. higher than the average over the section.

This is not taken into account in the R.I.B.A. reports, nor in the L.C.C. and other codes, although the junction of rib and slab is generally recognised as a dangerous point. It is obviously subject to a greater intensity of horizontal shear than is usually calculated for, and as it is almost invariably weakened by the methods

of construction, it should always be strengthened by bringing up rods or stirrups from the bottom well into the thickness of the slab.

#### Lateral Adhesion.

As the inner layers of a beam are more heavily stressed under horizontal shear than the outer, it follows that the adhesion stress between the concrete and the steel rods would be relieved in proportion. But, as in all other cases of doubt, it is far more important to be safe than to be logically consistent, and the worst conditions are assumed in each case, even though a different assumption may have been made elsewhere in the same member.

The surface adhesion of horizontal rods should therefore be sufficient to transmit the full flange stress without allowing for the possibility of some of that flange stress having been picked up en route by the concrete layers before reaching the steel.

The safe adhesion which can be allowed for between concrete and steel is 100 lbs. per square inch. The use of indented, twisted, and similar bars is intended to increase this adhesion. Instances of bars actually pulling out of reinforced beams under bending are rare, and it is open to question whether the tendency to pull out, which varies along the bars, is comparable with a direct pull on bars which have been embedded in blocks of concrete. The latter generally come away with particles of concrete still adhering to them, showing that the particles of concrete tend to adhere to steel with greater tenacity than they will to one another.

It must be remembered that a roughened surface only operates to prevent failure by dragging out; it does not affect the liability of the concrete to failure by diagonal tension or by lamination.

#### Hooked Ends to Bars.

The custom of bending over the ends of the tensile reinforcements into a J form is very desirable to adopt; not so much on account of the risk of the bars pulling out as on account of the valuable binding effect which such hooked ends can afford to the comparatively weak concrete at the point of maximum shear. The radius of the hoops should be large (say five times the thickness of the rods) for the same reason, and not, as is frequently stated, on account of the danger of transmitting the full tensile capacity of a substantial bar through the medium of a sharp hook, for at the ends where such bars are bent, they are under little or no stress, although they are picking up stress more rapidly near the ends than elsewhere.

(To be concluded.)

#### Ghent International Exhibition, 1913: Notice to Exhibitors.

The Royal Institute of British Architects has been requested by the Belgian Legation in London to announce, for the information of architects who have been invited to exhibit at the International Exhibition shortly to be opened at Ghent, that the works will be collected in the warehouses of Messrs. James Bourlet et fils, of 17 and 18, Nassau Street, W., from March 1st to March 10th, with a view to their being despatched all together to Belgium. Exhibits must take the form of drawings on strainers and framed photographs. The cost of packing and carriage to and from the Exhibition, together with insurance against risk en route, will be defrayed by the Exhibition Committee. The Committee, however, will not be responsible for the insurance of works while they are on exhibition at Ghent.

\* A more extended table will be found in Marsh and Duggan's Manual (Constable).



## STEEL FRAME BUILDINGS IN LONDON.\*

BY S. BYLANDER, M.C.I.

THE use of steelwork for the skeleton of the building before the passing of the L.C.C. General Powers Act of 1909 was relatively small. I believe the Ritz Hotel is the first building in London to be designed on the cage construction principle, about the year 1904.

*L.C.C. 1909 Act.*

The passing of the L.C.C. General Powers Act in 1909 has had a good effect on the method of construction. It would have been better if the building code had taken the form of regulations by the London County Council instead of an Act of Parliament. All regulations in connection with engineering must necessarily be revised periodically as the science and practice advances. I hope that at a not too far distant future this institute will urge the London County Council to obtain powers to issue new regulations in a more complete form; at present it is very difficult for the engineer to interpret the Act, as it does not contain sufficient details. For instance, the Act specifies safe stresses on pillar sections for ideal columns, but in my opinion it would be preferable to work to a table giving safe stresses for pillars with square or flat ends of the usual type. In actual practice ends are never fixed, and full advantage can never be obtained by provisions for fixed ends.

*Simplified Calculations.*

After dealing with stresses from eccentric loads, and insisting that the chief point in connection with satisfactory and economical design is accuracy of drawings and calculations, the author mentioned that he had adopted the practice of using one sheet of paper, quarto size, for the calculation of each piece. Each piece has a mark or identification number, and t's is used as the sheet number on the calculation sheet. This method will facilitate keeping of records, and avoid mistakes in connection with the alterations. It also permits of using printed sheets, and thus reduces the labour of repeating sketches and writing. I further believe (he continued) that the adoption of pounds as a unit of weights instead of hundredweights or tons is an advantage, for the reason that in close calculations one must deal with smaller unit weights than hundredweights, and decimals of hundredweights and tons are not desirable. Pounds are very suitable for unit weights and loads, but the pound is too small a unit for big loads. I have, therefore, adopted 1,000 lb. as a unit for big loads, and I call 1,000 lb. one kip, derived from kilo (= thousand) and p (= pounds). To transfer from one unit to the other only necessitates moving the decimal point three places, and during the period of eight years which I have used this system I have not experienced any difficulty, but on the contrary, I believe that a great amount of labour has been saved and mistakes have been avoided.

*Three London Buildings.*

I will now describe the system and construction used for the Ritz Hotel, Selfridge's Store, and the Royal Automobile Club. These buildings are practically constructed on the steel frame principle, the

general system and construction used being very much alike. I used the same system for the "Morning Post," Waldorf Hotel, Oceanic, and Park Side buildings, all in London, and the Calico Printers' Association building in Manchester, and others.

A survey of the site was first made, then the dimensioned pillar plan and the framing plans for the different floors, schedule giving sections and lengths of pillars, load sheets giving loads on the stresses in every beam and pillar, constructional details, and complete shop drawings. The framing plans were prepared, as far as it was practicable, by starting with the roof plan and working downwards floor by floor, and taking out loads from walls, floors, and smokestacks in accordance with the architectural drawings. The foundation plan was the last plan prepared, and therefore it was necessary that the whole of the design should be settled at an early date before working drawings for the foundations were prepared.

*Loads and Stresses.*

The floor load used in the calculations varied from 150 lb. per square foot to 200 lb. per square foot, including dead and live loads. Floors intended for specially heavy loads were calculated at 250 lb. per square foot. The live and dead loads were kept separate, and deductions made of live load for the pillars and foundations. The dead load was calculated as follows: Brick walls 120 lb. per cubic foot, or 10 lb. per inch of thickness of wall per foot super. Concrete for floors and girder casings 120 lb. per cubic foot, granite 160 lb. per cubic foot, and stone-faced walls average 140 lb. The weight of the steel beams was assumed at 6 to 10 lb. per square foot for all floors, and suspended ceilings 30 lb. per square foot. In the dead load for the floors were included the constructional floors, steel beams, plaster ceiling, or suspended ceiling, three-inch filling on top of floor at 10 lb. per inch in thickness, and 20 to 50 lb. for partitions.

Detail drawings were made of fireplaces and flues, and weights were calculated from detail drawings. Loads on staircases were figured at 150 to 200 lb. per square foot on horizontal projection.

The provision for live load was 75 to 100 lb. for ordinary floors, and 120 in special cases. The amount of live load above given was intended to mean a "dead load" equivalent to the actual "live load," which is now generally referred to as "superimposed load." The stresses used for the calculation were as follows: Steel beams (plain) 16 kips per square inch; girders (built up), 15 kips per square inch; shear on rivets, 10 kips per square inch; bearing, 20 kips per square inch; pillars for  $1/r$  less than 60; the maximum combined stress, 12 kips per square inch; pillars, direct stress, maximum to kips per square inch; pressure on ground for foundations, 5 to 6 kips per square foot.

*Drawings.*

The pillar plan gave all dimensions required for centre of pillars, and these dimensions were not repeated on the individual floor plans.

The framing plans were made very complete, and every beam or piece (shipped separate) was given a mark or number.

This mark consisted of the pillar number multiplied by 10 plus a serial figure 1 to 9; thus, beams near to pillar 12 were marked 121 to 129, and in addition the name of the floor thus: first floor beam near to pillar 12 was marked on the first floor framing plan (121), and on the shop detail was marked 1 FL 121. The pillars were marked with a number from 1 upwards on the plans. On the shop detail, in addition to the number and name of tier, the marks were given thus: the second tier extending from ground floor to second floor was marked "Tier B." An index was prepared in connection with the shop details for every floor, so that, when knowing the mark of the piece, one could find from the index the drawing number on which the detail was shown without any loss of time. The calculation sheets were similarly marked and indexed, admitting of easy references and alterations.

It may be pointed out that every piece had a mark consisting of a number and letters, and no two pieces had the same mark. These marks were used on the order lists for materials, shop lists, and the report of delivery and inspection. An inspector was appointed to check the quality of material as well as the manufacture, and inspect every piece before it was sent to the site, and compare the dimensions given on the detail drawings with the pieces as actually made.

*Details.*

The steelwork was riveted, and only bolted in places where rivets could not be used. Rigid connections were provided as far as possible, and the pillars were spliced about 1 ft. 6 in. above floor-level. Each tier extended through two stories. The joints of the pillars were machined to obtain perfect bearing. End or cap plates were used for box sections, but not for single-web sections. Splice plates were used throughout, whether or not cap-plates were provided. If the ends of the pillars were not milled perfectly square the pillars were rejected. Great care was taken in designing to ensure sufficient bearing surface for all butt joints and bearings of beams on stiffeners. The pillars were strengthened by stiffening plates at ends to provide reliable bearing surfaces, particularly when the metal was thin. This also applied to the base of the pillar resting on the cast-iron base or grillage. Beams were, as a rule, web-connected, and not milled to rest on lower flange of adjoining beam. The rivets in the connections were provided in sufficient number to carry load or reaction as well as the twisting moments produced by eccentric application of the load. Single-web beams or girders were used wherever possible, and the loads were applied centrally as far as was practicable. The detail drawings were made with the object of reducing field riveting; the dimensions for the open holes were distinctly given and checked. All the details were checked once or twice before they were sent to the shops, and the signatures of the draughtsman and the checker, also the date, were recorded on each detail drawing. Shop details were made on small drawings, each having a sheet number, and the sheet numbers were allocated as follows: 1 to 100, plans; 200 to 300, constructional details; 300 to 700, order lists; and 1,000 to 1,999, first floor details, 2,001 to 2,999, second floor details,

\* Extracts from a paper read at the thirty-second ordinary general meeting of the Concrete Institute, February 13th.



etc. It will thus be seen that the figure on the detail sheet corresponded with the number of the floor.

#### General Construction.

Two inches of concrete were used for fire protection for the steel. The brick walls were built in cement mortar, and all the steel was embedded in cement mortar whenever possible. Pillars of the box-section type were filled with concrete to prevent corrosion.

The pillars were generally supported on isolated foundations and not on continuous rafts, the concrete footings being from 12 in. to 18 in. thick; on this were set the grillage beams, embedded in concrete. The pillar base is set on top of grillage.

An idea may be formed as to the amount of drawings required in connection with the steelwork for a building of this kind, if it be stated that for Selfridge's Store, for instance, 12,000 blue prints were required, of which 2,500 were 40 in. by 27 in. in size. The erection of the building was carried on at exceptional speed, at the rate of about 125 tons per week. The shop details prepared per week were equivalent to 100 tons of steel.

Isolated foundations were provided for the new Ritz Hotel building. The depth of each pillar foundation was 5 to 6 ft., and consisted of a concrete footing, on which steel grillages were set with cast-iron bases to support the pillars. The cast-iron bases were about 3 ft. 6 in. square, and permitted of being set in cement grout and not direct on steel beams, as the stress per square inch on the grouting was not excessive, and the pressure was more uniformly distributed on to the grillage beams and the concrete. My experience is that it is hardly possible to get perfect bearing on grillage beams by direct contact unless the surfaces are machined.

The Selfridge Store was designed as a complete steel frame building, with the exception that the external walls were self-supporting. The ground-floor piers were built sufficiently large in blue brick to carry the external wall as well as the load from the floors. There are three basements, and the total depth of excavations below street level is, in one part of the building, 60 ft., and the retaining wall for this portion, which is about 100 ft. long, is self-sustaining and L-shaped of reinforced concrete, the base being about 25 ft. wide, and acting as a foundation for the external piers. The pillar loads are carried on concrete footings with steel grillages and cast-iron bases. In some cases riveted steel bases on the pillars are used resting direct on plate girders. The sections for the pillars are made up of 6-in. by 6-in. angles, with 14 in. wide cover plates. The pillars are in two-story lengths, similar to the Ritz Hotel, and butt-jointed with splice-plates immediately above the floor level. The staircases are constructed of reinforced concrete, and supported at each floor level on steelwork. The floors are constructed in reinforced concrete about 6½ in. thick, the span being about 12 ft. The steelwork is covered throughout with 2 in. of concrete secured with stout wire.

The Royal Automobile building is constructed as a complete steel frame, except parts of the external walls, which are self-supporting. The foundation work for this building is rather elaborate on account of the swimming-bath which is placed at the lower basement level. The pillars are supported on concrete footings and steel grillages, the pillars being provided with riveted steel bases set directly on the steel grillages and bolted to same. The swim-

ming-bath is constructed independently of the foundations in reinforced concrete. The back retaining wall, about 36 ft. high, is also constructed of reinforced concrete. This wall is self-sustaining, and the base acts as foundations for steel pillars supporting the building above. The average span for the floor construction is 12 ft. The floors are constructed in reinforced concrete about 6 in. thick, and all the steelwork is covered with about 2 in. of concrete. Some heavy girders, weighing each about 12 tons, are provided over the large rooms to carry the building above.

The reading of the above paper was succeeded by a discussion, in which the following took part: Mr. W. G. Perkins, District Surveyor for Holborn, member of Council C.I.; Mr. E. Fiander Etchells, F.Phys.Soc., M.Math.A., A.M.I.Mech.E., member of Council C.I.; Mr. R. P. Mears, B.A., A.M.I.C.E., Mr. P. H. Simco; Mr. Allan Graham, A.R.I.B.A., M.C.I.; Mr. J. H. Pearson, M.S.A.; Mr. James Petrie, M.C.I.; Mr. H. Woodward Aston; Mr. E. P. Wells, J.P., president C.I.; and Mr. S. Bylander, M.C.I., replied.

The next meeting of the institute will take place on Thursday, February 27th, when Mr. John A. Davenport, M.Sc. (Vict.), B.Eng. (L'pool.), A.M.I.Mech.E., M.C.I., will read a paper entitled "Economy in Reinforced Concrete Design."

The secretary of the Concrete Institute announces a change in programme in respect to the meeting which was announced to take place on March 13th. Instead of a discussion on the reports of the Reinforced Concrete Practice Standing Committee, a paper will be read by Mr. H. C. Johnson, Demonstrator in Engineering, University College, Cork, on the subject of "Results of Tests on Fifteen Cements Used in Paste-mortar and Concrete." The meeting will commence at 7.30, as usual.

The total membership of the institute is now 968. When the membership reaches 1,000 an entrance fee, which at present is not required, will be imposed.

## NEWS ITEMS.

#### *Reredos at Whitchurch.*

A reredos, designed by Sir Charles Nicholson, is to be presented to Whitchurch Parish Church, Salop, by Mr. T. C. Dugdale in memory of his son, the late Lieutenant Dugdale, 15th Lancers.

#### *British Museum Extensions.*

The extensions are mostly confined to the northern section of the building, and £150,000 has been secured to carry them out. Of this amount £50,000 has been privately bequeathed. The alterations will include the enlargement of the newspaper room and the provision of new storage rooms for prints, periodicals, and pieces of china, which the curators have been unable to display before.

#### *The Swiss National Monument.*

The Government Art Commission appointed to report upon the whole question of erecting a vast Swiss national monument has decided in favour of the project. Five designs have been submitted and that placed first by the jury having met with much adverse criticism, the design that was placed second has been adopted. This design, which is by Herr Zimmermann and Herr Hartmann, shows an open hall flanked with large wings. The building, 200 ft. long and of extreme simplicity of design, is to stand on a terrace, and at its front will be three figures,

to be hewn from granite, and each 23 ft. high, symbolising the three divisions of the Swiss Confederation—French, German, and Italian; while a relief of the battle of Morgarten (1315) will also be a prominent feature of the façade.

#### *Exhibition of Roadmaking Appliances and Materials.*

The third International Road Congress, which will be held in the Royal Horticultural Society's Hall and adjacent ground, Vincent Square, Westminster, on June 23rd, closing June 28th, is open to all classes of machinery, apparatus, models, drawings, plans, and maps illustrative of road construction. Immediate application for space should be made.

#### *Business Openings in Australia.*

Mr. O. L. Remington, of the firm of Messrs. Wm. McLean and Co., electrical power and machinery merchants, of Melbourne, is at present in London, and desires to get into close touch with firms who have any goods of special interest which they are desirous of establishing on the Australian market. His address is the Hotel Cecil, W.C.

#### *Partnership.*

Mr. F. Dare Clapham, F.R.I.B.A., the surviving partner of Mountford and Clapham, Norwich House, Southampton Street, Bloomsbury, W.C., announces that he has taken into partnership Mr. H. B. Symons-Jeune, and the style of the firm will in future be Messrs. Clapham and Symons-Jeune. The practice will be carried on at the same address. The telephone number will remain as before, Central 4226.

#### *Memorial Dispensary, Nottingham.*

It has been decided to erect, with money which has been publicly subscribed, a tuberculosis dispensary in Nottingham as a memorial to Dr. W. B. Ransom, who spent a large part of his professional career in the work of treating consumptives, and himself ultimately fell a victim to the disease. The building is to be handed over to Nottingham Corporation for the use of patients resident in the city, and a memorial bust of Dr. Ransom will be placed therein.

#### *Stead Memorial.*

The President of the Royal Society of British Sculptors, Sir George Frampton, R.A., has accepted from the executive committee of the Journalists' Fund for the provision of a memorial to the late Mr. Stead a commission to execute a medalion portrait on tablet, in bronze, which is to be placed in a position granted by the London County Council on the Thames Embankment. A handsome contribution to the fund having been received from the journalists of America, it has been resolved that a replica shall be forwarded for erection in New York.

#### *The Bath Road.*

The Wiltshire County Council have adopted by a large majority a scheme for the reconstruction of the thirty-five miles of the London-Bath road which run through Wiltshire. The cost of reconstruction, and of maintenance for nine years afterwards, is estimated at nearly £75,000. The Road Board will make a grant of £34,700 and will lend £35,600 free of interest. The road will be constructed with a 3-in. coating of tar-macadam or feromac throughout, and its foundations will be strengthened. It will be widened to a minimum of 20 ft., and the camber reduced where excessive.



## COMPETITIONS.

*Parish Church, Newcastle-on-Tyne.*

Eight local architects submitted designs for the proposed new church of St. Monica, Newcastle-on-Tyne, and the awards are announced as follows: 1, Mr. C. S. Errington, A.R.I.B.A.; equal 2, Mr. J. H. Morton, F.R.I.B.A., and Messrs. Harrison and Ash.

*Valley, Anglesey, Rural District Competition and Gwynfrai Rural District Competition.*

The Competitions Committee of the Royal Institute of British Architects request members and licentiates not to take part in the above competitions until a further announcement is made that the conditions have been brought into conformity with the Institute "Regulations." The committee also request competitors to return their copies of the conditions immediately to the promoters.

*R.I.B.A. Prizes and Studentships, 1913: The Essays: Further Awards.*

Acting on the recommendation of the Essays Sub-Committee of the Prizes and Studentships Committee, the Council of the Royal Institute of British Architects have awarded Certificates of Honourable Mention to the following competitors for the Royal Institute Silver Medal: Martin Shaw Briggs, A.R.I.B.A., for an essay on "Baroque Architecture," submitted under the motto, "Chi non sa far stupir vada alla striglia." John Hubert Worthington, A.R.I.B.A., for an essay on "Baldassare Peruzzi of Siena," submitted under the motto, "Anti-Baroque." Frederick Thorp, M.A., for an essay on "The Timber Style," submitted under the motto, "Durmast."

## LIST OF COMPETITIONS OPEN

MARCH 19.—PLANS FOR SMALL SEMI-DETACHED HOUSE. Proprietors of "THE ARCHITECTS' AND BUILDERS' JOURNAL" offer premiums of £5 5s., £3 3s., and £2 2s. for plans and section of a semi-detached suburban house (elevations not desired). For full particulars, see page 191 of our issue of February 19th. Drawings to be sent in by March 19th, to the Editors of "THE ARCHITECTS' AND BUILDERS' JOURNAL," Caxton House, Westminster.

MARCH 31.—GARDEN SUBURB, IPSWICH.—Competitive designs are invited for laying out about 26 acres of land as a working-class suburb on the lines of a modified garden city. Premiums, 50, 30, and 20 guineas. Conditions and plan (10s. 6d., returnable) from Mr. Will Bantoft, Town Clerk, Town Hall, Ipswich.

APRIL 2.—HIGH SCHOOL, MOTHERWELL.—Dalziel School Board invite designs for a new high school. Assessor, Dr. J. J. Burnet, A.R.S.A., F.R.I.B.A. Second, third, and fourth premiums, £40, £30, and £20. Conditions to be obtained from Mr. Thomas M. Young, Clerk to the School Board of Dalziel, Motherwell.

APRIL 18.—SECONDARY SCHOOLS, READING.—Reading Education Committee invite designs for Kendrick Boys' and Girls' Secondary Schools from architects within the borough. Premiums, 70 guineas and 30 guineas. Particulars, Education Office, Blagrove Street, Reading. Mr. Ernest Newton, A.R.A., F.R.I.B.A., is the assessor.

APRIL 21.—COUNCIL SCHOOL, NORTHAMPTON.—Northampton Borough Education Committee invite architects practising

in the borough or county of Northampton to submit plans for a new council school. Conditions from Stewart Beattie, Secretary, Borough Education Offices, 4, St. Giles's Street, Northampton.

APRIL 29.—MUNICIPAL OFFICES, BARNET.—Barnet Urban District Council invite designs for new municipal offices, to be erected at a cost not exceeding £4,000. Premiums, £25, £15, and £10. Particulars from Mr. W. F. Wilkins, M.S.E., 40, High Street, Barnet. Designs to be delivered to Mr. H. W. Poole, Council Offices, 40, High Street, Barnet. (See note in our issue of February 12.)

MAY 31.—"IDEAL HOMES" EXHIBITION.—COTTAGES AND BUNGALOWS.—Designs are invited for (1) A workman's detached cottage; (2) a pair of workmen's semi-detached cottages; and (3) a bungalow for four single persons. The prize in each case is £50. Assessor, Mr. Leonard Stokes, F.R.I.B.A. Particulars (not later than March 15) from the Secretary, Ideal Homes Exhibition, 130, Fleet Street, E.C., to whom designs are to be sent.

JUNE 14.—MUNICIPAL BUILDINGS, DEVONPORT.—The Corporation invite designs for municipal buildings and a guildhall. Premiums, £350, £150, and £100. Assessor, Mr. Ernest Newton, A.R.A., F.R.I.B.A. Conditions (£2 2s., returnable) from R. J. Fittall, Town Clerk, Municipal Offices, Devonport, to whom designs are to be sent.

JULY 1.—ROYAL PALACE AND LAW COURTS, SOFIA.—Particulars of this competition are obtainable from the Commercial Intelligence Department, Board of Trade, Basinghall Street, E.C. [In consequence of the war, the date has been extended from that formerly announced.]

NO DATE.—KURSAAL, FOLKESTONE.—Cost not to exceed £29,000. Premiums, 100, 50, and 25 guineas; premiums of accepted design to merge in fees. Apply to Town Clerk, Folkestone.

## COMING EVENTS.

Thursday, February 27.

Sheffield Society of Architects and Surveyors (Students' Meeting).—Mr. H. B. S. Gibbs on "The Work of James Gibbs."

Concrete Institute.—Mr. John A. Davenport, M.Sc., on "Economy in the Design of Reinforced Concrete."

Society of Architects.—Mr. G. A. T. Middleton, A.R.I.B.A., on "Amiens Cathedral," at 8 p.m.

Saturday, March 1.

Institution of Civil Engineers.—Students' Visit to Royal Albert Dock Extension.

Monday, March 3.

Society of Engineers.—Presidential Address by Mr. Arthur Valon, at 7.30 p.m.

Thursday, March 6.

Leeds and Yorkshire Architectural Society.—Mr. Wm. Black on "Standards in Reinforced Concrete Design."

Architectural Association (Camera, Sketch and Debate Club).—Mr. Paul Fildes and Mr. Alan Potter on "Architecture in Photography," at 8 p.m.

Friday, March 7.

Birmingham Architectural Association.—Mr. William Haywood, F.R.I.B.A., on "The B.A.A. Excursion to Malines, 1912."

Saturday, March 8.

Architectural Association.—Fifth Spring Visit to King's College Hospital, Denmark Hill (Mr. William A. Pite F.R.I.B.A., architect), at 3 p.m.

## OBITUARY.

*Mr. J. Francis Doyle.*

Mr. J. Francis Doyle, who has died a Childwall in his seventy-third year, designed many large commercial buildings in Liverpool, among them being the Royal Insurance buildings, the White Star and Cunard offices, the commercial sale room, and several churches, including the Willox Memorial Church and St. Nicholas Wallasey (Harrison Memorial).

*Mr. Julius Homan.*

We greatly regret to hear of the death on February 1st, in his ninety-first year, of Mr. Julius Homan, the founder of the firm of Messrs. Homan and Rodgers. He was one of the pioneers in steel and concrete construction, and was the inventor of compound girders composed of joists and plates, which he patented about the year 1868. He retired from business in 1900.

*Mr. Robert Falconer Macdonald, and Mr. W. G. Blackmore Lewis, F.R.I.B.A.*

At the meeting of the Royal Institute of British Architects held on February 17th, Mr. G. Hubbard announced the decease of Mr. Robert Falconer Macdonald, elected Associate in 1889 and a Fellow in 1899, and of Mr. William George Blackmore Lewis, Grissell Medallist in 1878 and elected a Fellow in 1906. Mr. Lewis, who was sixty years of age, had been a member of the Architectural Association since 1874. For a number of years Mr. Lewis was instructor in the Architectural Association Studio, and some hundreds of members of the profession owe their early training to him. He was editor for many years of the "Architectural Association Sketch Book." The high standard which this publication has reached is largely due to his energies.

*Sir William Arrol.*

We greatly regret to record the death, which took place at Seafeld, Ayr, last week, of Sir William Arrol, one of the foremost of constructional engineers. William Arrol was born at Houston, Renfrewshire, in 1839. Having served an apprenticeship as a mechanical engineer, he began business on his own account in 1869, his sole capital being £85, saved from his earnings. From this small beginning he built up the vast steel works at Dalmar-nock, where now about 5,000 men are employed. He first attracted attention by the bold method adopted in building for the North British Railway Company a bridge over the Clyde at Bothwell. The length of this bridge was 727 ft., and the girder was built on land and slid as a continuous whole across the river. He constructed the Tay Viaduct, which was opened in 1887, eight years after the fall of the Tay Bridge which it superseded, and in this work and in that of the Forth Bridge he overcame many extraordinary difficulties, and devised many tools and methods. It was upon the opening of the Forth Bridge by the Prince of Wales, in March, 1890, that Arrol received his knighthood. He built the Tower Bridge, widened Blackfriars Bridge, and was adviser with respect to the reconstruction of Southwark Bridge, which his firm has now taken in hand, and, besides building bridges all over the world, he had suggested several improvements in other forms of construction—as, for instance, in the roofs of factories, the modern system of providing abundance of light being traceable to his influence. Sir William sat in the House of Commons from 1895 till 1906.



THE  
ARCHITECTS' & BUILDERS'  
JOURNAL.

Wednesday, March 5, 1913.

Volume XXXVII. No. 947.

No. 23



*(From Piranesi.)*



*Photo : Bedford Lemere & Co.*

THE STAIRCASE, "HEATHCOTE," ILKLEY, YORKS. EDWIN L. LUTYENS, A.R.A., F.R.I.B.A., ARCHITECT.

*(See page 242.)*



# THE ARCHITECTS' & BUILDERS' JOURNAL.

MARCH 5, 1913.

CAXTON HOUSE, WESTMINSTER.

VOLUME 37. No. 947.

## The Permanence of Architecture.

NO other art does the artist so irrevocably commit himself in the achieving of his creation as in architecture. This fact alone, that a man's improprieties, his indiscretions, and his mistakes remain as unveiled publicity as his masterworks, is sufficient to differentiate architecture from all the other arts. A painter can and usually does destroy his early attempts; or if the work has passed out of his hands, he can get it back on some pretence and repaint it in accordance with his later technique, as Rossetti did with his "Lady Lilith." The poet—or, if he be an obtuse self-critic, his editor—can suppress his unfinished songs; and the novelist can re-write in a later edition any passage that his maturer taste repudiates. Readers of "Evan Harrington" in the first edition must often regret the almost complete erasure of Raikes' rough Meredith's merciless pruning. The musician's score is purged by an automatic process—it is never aye, and he has the same chance of revision, and it is exercised it as frequently as the painter and writer. But the architect can neither efface nor revise, though a timely fire will occasionally come to his aid; and even then the client, having grown used to the old building, has been known to insist on its literal resurrection. To this permanence may be attributed the fact that architectural originality must be kept within a closer ring than the other arts. The poet, painter, or musician must at all hazards express his own personality with a vehemence that may lead to freakishness, rather than echo his predecessors. But the great architect refines upon what has gone before, originating within a narrow compass, and so produces the Parthenon, whose originality consists merely in refinements more subtle than those of the older temples. The capital error of New Art in architecture was not so much its innate futility, but that it attempted to apply to architecture a freakish freshness which is quite allowable in a Post-Impressionist painting or a one-poem by Richard Strauss. How stale does a freakish building become when the humour of its spring has worn off! Hence the sterility of the New Art leaven working in architecture.

At no time is the irrevocableness of an architect's work so annoying as during protracted periods of transition, such as that from which we are just emerging. Happy the architect at such times who never builds, whose unsuccessful competitive designs have taken a no more permanent form than an illustration in one of the building papers! How much more fortunate is he who, having edited the perspectives on the walls of his office, can point to a series of recent designs of classic purity, than his brother architect who has died the ill-luck to carry to completion a town hall in the depraved Victorian Renaissance of fifteen years ago!

Even Inigo Jones, who appeared at the close of a similar transition period, must have had many youthful allies to deplore, though he would probably plead guiltless of the many dubious houses (particularly in

Wales) that are locally fathered on him; but who will deny that his reputation stands considerably higher since Whitehall was left as a plan on paper and not an executed building? The fragment which he built was sufficient to show his strength without betraying his weakness; but he would certainly himself have grown ashamed of the river front with its turrets, broken masses and smallness of scale.

Architects, who are sometimes twitted with being the most commercial of artists, have nevertheless observed the greatest modesty in signing their buildings. Perhaps this reticence is to be attributed to a fear of their accusing permanency; and the amazing ignorance which the public and Press show of their authorship is thus the result of this intentional backwardness. The sensitive horror of owing to the authorship of unworthy but indestructible work, and the comforts of anonymity, are admirably expressed in a story which Sir Arthur Quiller-Couch puts into the mouth of one of the characters of his superb romance "Sir John Constantine." "Tell me," says Mr. Fett, "why is an architect architectonic? Because he sits in his parlour, pushing the brown sherry and chatting with his clients, while his clerks express their souls for him in a back office. This lesson I learnt from an uncle of mine who had amassed a tidy competence by thus vicariously erecting a quite incredible number of villa residences for retired tradesmen. I say vicariously, for on his deathbed it brought him inexpressible comfort that he himself had not designed these things."

But there is the more serious side to this differentiation which has been drawn between architecture and the other arts than the selfish one of personal reputation. If architecture is more irrevocable than the other arts, how much more necessary is it to hasten out of the quaking quagmire of transition on to the firm ground of pure style? It is only during the dark floundering of a period of low architectural inspiration that a man can grow ashamed of his work of ten years ago. Wren, Chambers, and Cockerell certainly improved as they proceeded, but their later work was no negation of their earlier; it was merely a completer fulfilment of the same intention. The recognition of the more limited field of architectural originality and the general prevalence of a unified system of education should in time produce a body of architectural work moving forward like a solid phalanx. Guerilla warfare, light skirmishes, and individual escapades of daring, must be left to the other arts. Western architecture, which, like Alexander's army, is a slow-moving and compacted mass in which the individual is barely distinguishable, should direct its unconquerable course over the civilised world; even an expedition to India should not be beyond its power of endurance.

Seen in this light the impersonality of architectural authorship has something noble about it. A giant, however, will occasionally out-stand. The artists of St. George's Hall and the Palais de Justice of Brussels could never bury their individualities in the mass of the phalanx in which the rank and file of the profession



are doing good but indistinguishable work. But if we are to move together, and if our traces are to be more permanent than Alexander's transient conquests, let us be certain that like him we are spreading abroad and impressing upon the face of the earth the culture of a great style. Then there should be no need for us either to sign our buildings or to grow ashamed of them, for they will be part of the general forward movement of civilisation

L. P. A.

#### Liabilities of Exhibition Promoters.

THE decision in last week's case concerning a statue that was shown at the Walker Art Gallery, Liverpool, is of interest to all who are either exhibitors at or promoters of public exhibitions. In this case a well-known French sculptor, M. Aronson, sent to the Walker Art Gallery a marble statue of a female figure, entitled "La Pensée." The statue, before being forwarded to Liverpool, had been sold to a gentleman for £600. When it came back to the sculptor in Paris the head was found to be broken off. Hence the action in question, which had been preceded by a formal application in the French Courts. M. Aronson claimed that the statue had been negligently packed and that the Liverpool Corporation, as the authorities of the Walker Art Gallery, were responsible for the damage. For the Corporation it was contended that every care had been taken in packing the statue, that M. Aronson exhibited it in accordance with the terms stated in the exhibition catalogue (that the authorities would not hold themselves liable for anything that happened to exhibits), and that, further, they were protected by the Public Authorities' Protection Act. The hearing of the case occupied three days, and in the end went against the Corporation, who were ordered to pay £350 damages, plus £58 incurred in legal proceedings in France. The special significance of the case is, that the clauses disclaiming liability for damage which are commonly inserted by promoters of exhibitions will not give protection where negligence is proved. Such a verdict was given in the present case, though, on the subject of what constitutes proper packing for a statue, there was a divergence of opinion. This actual exhibit was taken off its pedestal, completely wrapped in tissue paper, then tied round with brown paper, and put on a bed of straw about an inch deep on the bottom of a packing-case; the whole being filled round tight with wads. This inner case was put inside another, and wads were packed between the two. For the sculptor it was contended that this was the wrong way: the statue should have been packed with its base, and the latter fixed down. The question of packing was not, of course, an incidental item, but all-important, for the whole action turned upon it: and, in view of the verdict, promoters of exhibitions will no doubt be more careful than ever, both in protecting themselves against liability for damage, and in taking the utmost care to avoid injury being done to any object entrusted to their keeping.

#### Remodelling Euston Station.

AN impressive start was made at Euston Station when the great Doric gateway and the fine booking hall were erected towards the middle of the last century, but after passing through that dignified portal it must be confessed that there is a sad disappointment within. The platforms ramble on either side and there is a complete absence of the impressiveness one had anticipated. It is with great interest therefore that we learn that Euston is to be remodelled on what is termed "the American plan." With such an example before us as the Union Station at Washington, illustrated in this issue, we can see at once what fine results "the American plan" is capable of, and we only hope that something on these lines may be done at Euston. As, however, the reconstruction is to be completed in two years only, it seems unlikely that

anything on so grand a scale is contemplated. London still awaits the great terminus, its nearest example at present being St. Pancras.

#### The Care of the Cathedrals.

THE Ancient Monuments Consolidation and Amendment Bill, which seemed so likely to go quietly through Parliament as a non-contentious measure, is likely now to be the subject, so far as the cathedrals are concerned, of bitter dispute. As already reported in these columns, the object of the Bill is to give power to the State to take over the care of national monuments, so that they may be properly looked after, and so that they may not be disposed of for money-making purposes, and, perhaps, transported out of the country. As regards the cathedrals, there is of course no danger of the latter treatment, but what Convocation feels that, as the Office of Works would have power to transfer the guardianship of any monuments to the County Councils, the Church might lose hold of its buildings, and St. Paul's might be handed over to the London County Council! Hence the resolutions passed at the meeting of Convocation, urging strenuous opposition to the inclusion of cathedrals in the Bill. We feel, however, that there is very little cause for alarm, and that, in the case of these magnificent monuments, the First Commissioner of Works would never delegate his authority. In any case, past events have never offered very convincing proof of the beneficent control of Deans and Chapters, and we should doubt very much if under State guardianship there would have been such a desolating record of restoration as the nineteenth century can show.

#### The Art of Delaying.

WHEN the question of to build or not to build has been fully debated by the corporation, and the ratepayers have it, the case of the noes is never utterly hopeless. A little ingenuity, and some acquaintance with precedent, will enable them to reopen the question and reassert themselves with redoubled ardour. When the decision to build is irrevocable, or may still be able to wrangle about the site. If that has been already acquired, objection to its unsuitability cannot be so gloriously protracted as when the choice has been unwarily left open; in the latter case the controversy may drag on for a decade, or, long before the period has elapsed, the building project may be abandoned in despair. Next in order of usefulness as an offensive weapon is the question of appointing an architect. This need by no means be decided in a hurry. Economically employed, it may be made to spread over a month of merry meetings. Then, when the die has been cast as to whether the town-hall shall be designed by the resident road-surveyor or "thrown open to competition"—fine reckless phrase!—among mere architects, the resources of retardation are by no means exhausted. He is but a poor committee member who cannot contrive an amendment or so, or perhaps an adjournment or two, on the testy questions of local or outside tenders, of why the lowest tender was or was not accepted, and of the remuneration of the architect. A further hopeful possibility was unfolded the other day at Swansea, where the corporation have decided to erect an asylum. They are going to build it of brick. Naturally someone rises in his place to say that therefore they are about to blunder. Stone should be used, and an item of £10,000 or £12,000 increase in the cost ought not to be considered in such a matter. Obviously, if stone had been chosen, somebody would have protested that brick was imperative, and that the ratepayers' pocket was the ruling consideration. There is always an alternative, and when city councils require some whetstone for their wits, they resolve to build something, in order that they may debate alternatives—an exhilarating pastime, though not conspicuously profitable.



## INEXPENSIVE SANATORIA.

THE Local Government Board have just issued a memorandum, prepared by their architect, Mr. Brook Kitchin, F.R.I.B.A., and their Medical Officer, Dr. Arthur Newsholme, on the construction and arrangement of inexpensive buildings for the treatment of cases of tuberculosis, the Board having been impressed with the necessity for securing that in the provision of such institutions forms of construction are adopted which are as economical as is compatible with efficiency.

Although within the last twelve months a large number of beds have been made available for the treatment of tuberculosis, it is clear that in many areas further accommodation is urgently required. Complete institutions may be built in a comparatively short time in accordance with the suggestions contained in the memorandum, but additional accommodation may generally be more expeditiously provided at or in connection with existing hospitals and sanatoria, where provision for administration, etc., already exists.

The Board adhere to their view that a sanatorium for the treatment of early cases of tuberculosis should, where practicable, on grounds both of economy and efficiency, contain no fewer than 100 beds, but they express their willingness, in cases where the population of an area would not justify provision on this scale, and has not been found feasible to arrange for a concentration of areas, to consider proposals for providing institutions with fewer beds.

After a few preliminary observations, the memorandum proceeds to deal with construction details as follows:—

### Forms of Construction.

Accommodation for patients may be rapidly built, at a comparatively small cost, of timber framing, weather-boarded, and creosoted or covered with corrugated iron or other suitable material, such as tile hanging, plastic sheeting, or covered with expanded metal and painted, and covered internally with lath and plaster, plastic sheeting, etc.; and a portion of this accommodation may be temporarily arranged and used for the accommodation of the additional staff until complete permanent quarters have been provided.

In addition to the above method, the following forms of construction, which do not, however, lend themselves to such rapid and economical construction, but of a more permanent character, may be employed:—  
Buildings constructed of steel framing filled in with

terra-cotta or concrete slabs (b) hollow concrete blocks, (c) solid concrete. These forms of construction would, under favourable circumstances, be somewhat cheaper than brickwork, but their economy depends upon the ready access to suitable materials and upon the presence of labour skilled in such special forms of construction; further, it must be borne in mind that risks of settlement and fracture are incidental to buildings of concrete which have been hurriedly and perhaps carelessly constructed.

### Relative Cost of Walls.

The relative initial cost of the walling constructed of these various forms in comparison with walls of 9-in. brickwork may, under ordinary conditions, be approximately reckoned as follows:—

Walls of timber framing covered with weather boarding or expanded metal lathing rendered in cement and plastered internally, from 25 to 30 per cent. cheaper.

Walls constructed of concrete blocks or solid concrete, 20 per cent. cheaper.

Walls constructed with terra-cotta or concrete slabs, 15 to 20 per cent. cheaper.

### Timber-framed Buildings.

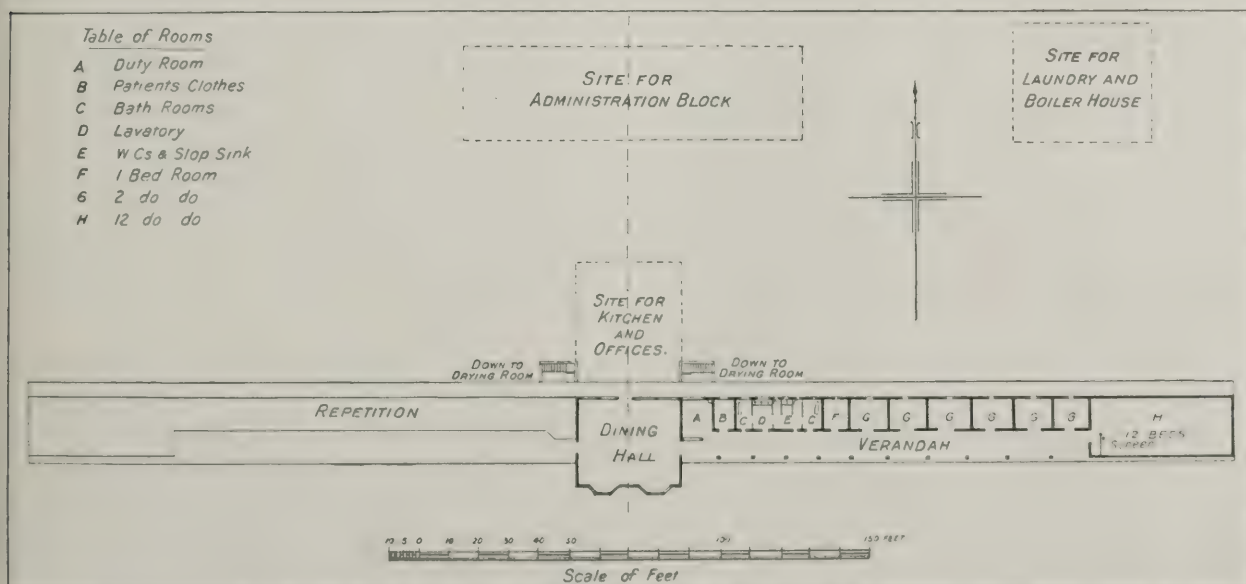
Under ordinary conditions, the cost of patients' accommodation constructed of timber framing should not exceed £50 per bed, exclusive of administrative department, etc.

Timber-framed buildings, though less permanent, and requiring greater cost in upkeep, have the advantage of requiring little or no foundations. They may be erected on a concrete platform, which may also form the flooring of the wards and verandahs. The actual amount of brickwork required will be almost negligible.

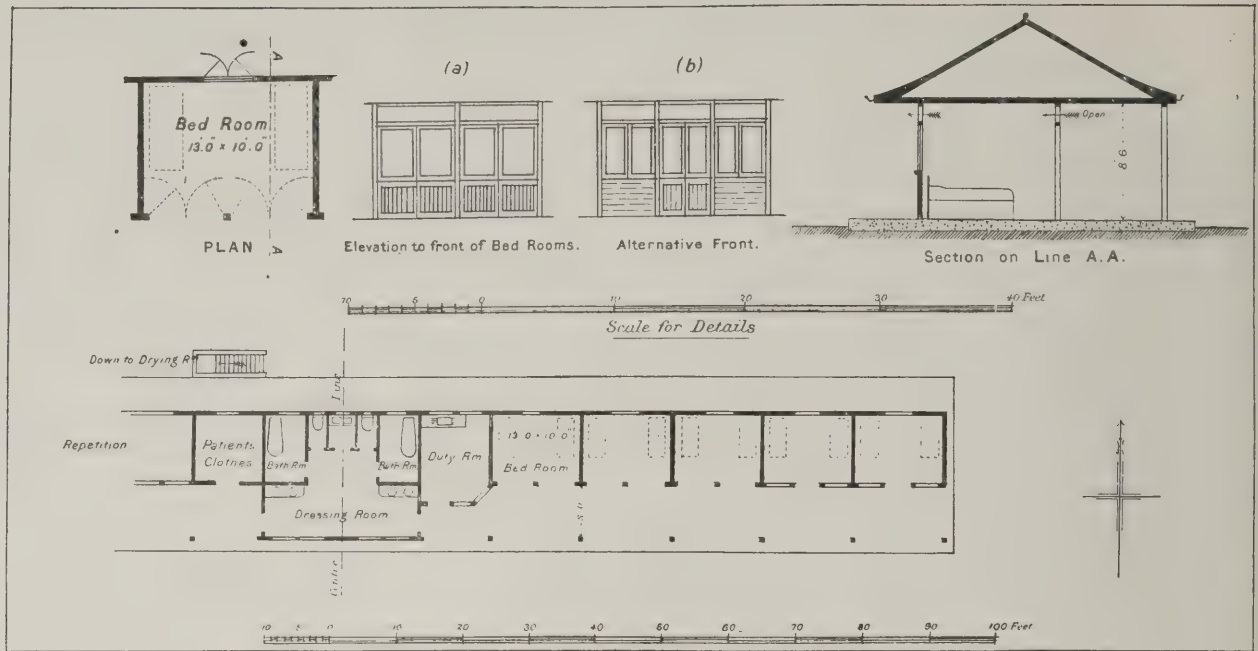
Where sufficient labour for the construction of such buildings cannot readily be obtained, it may be necessary to have recourse to firms who make a speciality of the rapid erection of such buildings, and who keep in stock the materials ready for emergencies.

### Types of Buildings.

The type of building which is most suitable for the purpose will vary according to the particular needs and circumstances of the locality in which it is to be erected and for which it is required. The accompanying



PLAN A. SUGGESTED PAVILION FOR 50 PATIENTS (25 OF EACH SEX).



PLAN B. SUGGESTED PAVILION FOR 20 PATIENTS OF ONE SEX.

NOTE: If required for two sexes, a modification of the sanitary arrangements will be necessary.

diagram plans are intended merely to illustrate two types which would generally be suitable:—

Plan A is a pavilion for fifty beds (twenty-five of each sex) which might form an adjunct to an existing hospital or form the basis of an independent sanatorium with an administrative department, which is shown approximately by dotted lines on the plan. It is suggested that such a building might be constructed of timber-framing on a concrete platform, and that it should comprise a series of two-bed wards each 13 ft. by 10 ft., and one ward for twelve beds, with a central dining-hall large enough to accommodate, besides the patients in the pavilion itself, any patients that might at a future date be accommodated in other pavilions or chalets. The room shown on the plan would be capable of dining 100 persons.

Plan B is a design for a pavilion of similar construction to contain twenty beds of one sex, intended to supplement existing accommodation. If a still smaller number of additional beds will suffice, the block can be reduced according to requirements.

#### *Details of Bedrooms.*

The divisions between the bedrooms may be formed of timber framing covered with expanded metal or wood lathing and plastered, or of coke breeze or cement slabs two or three inches thick. The front wall of the patients' bedrooms should be framed in timber and fitted with two pairs of French casement doors, each door being hung in two sections, on the "stable door" pattern, or, as an alternative, with one pair of doors having window openings on each side, which may be left open and fitted with roller blinds or may be fitted with casement windows opening the full extent of the window frame (see detail B). The space above the door and window frame, and a corresponding space on the back wall, should be left completely open for ventilation (see section). If the local circumstances are suitable, the front of each bedroom or of some of the bedrooms may be left entirely open.

#### *Floors.*

The floors of the wards may be finished in cement and covered with linoleum or covered with narrow floor boards laid in pitch. The verandah floors should be of granolithic finish, with a slight fall to the outside.

#### *Hot Water and Heating.*

Hot water can be supplied from a boiler in a basement under one of the duty rooms, while in a corre-

sponding basement on the other side a boiler for heating the dining-hall, etc., could be installed. These rooms may also be used as drying rooms for patients' clothes, bedding, etc.

#### *Disposal of Sputum.*

Provision should be made for the satisfactory disinfection and disposal of sputum and for the cleansing of sputum cups after disinfection, preferably by steam.

#### *Duty Rooms.*

The nurses' duty rooms should be fitted with sink and with a gas range or small cottage coal range which may be of the "portable" type, and a small ventilated food store.

#### *Sleeping Shelters and Chalets.*

These, if provided, should form only a small proportion of the total accommodation, in view of administrative difficulties. Where the special circumstances of the case justify this form of accommodation on a limited scale, they should be erected on concrete foundations, and provision made for adequate supervision and for convenient access of the patients to sanitary conveniences, etc.

#### *Sewage Disposal.*

Where a drainage system is not already in existence, some arrangements will be necessary for purifying the sewage before it is discharged into a stream or watercourse. Where suitable and sufficient land is available, purification by land treatment will be the most satisfactory. Earth closets are only permissible under exceptional circumstances or as a temporary arrangement. If the use of earth closets should be necessary they should be isolated from the building containing the patients' accommodation.

### A FINE STAIRCASE.

THE staircase at "Heathcote," Ilkley, illustrated on page 238, is typical of the individual treatment of English Renaissance work which Mr. Lutyens has made his own. There is a feeling of fine spaciousness about this staircase, and the wrought-iron balustrading, reminiscent of some examples in eighteenth century London houses, is particularly graceful. Additional interest is given to our illustration by the fact that Mr. Lutyens was elected last week an Associate of the Royal Academy, in place of Mr. Bramley.



## THE PLANNING OF MODERN HOSPITALS.\*

BY H. SAXON SNELL, F.R.I.B.A., F.R.San.Inst.

THE modern type of hospital may be said to have taken its rise shortly after the Crimean War and as the result of experience gained in that disastrous campaign. The pavilion type was adopted, and it holds the field to this day. Tollet says that this form of ward was suggested as far back as 1750.

The pre-pavilion type is extinct and no longer of interest except in an archæological sense. Hospitals were mere collections of rooms, large and small, with little or no arrangement or plan specially adapted to the purposes of housing sick people. The administrative offices and sanitary conveniences were all more or less in direct communication with the sick-rooms. That is not to say they were badly planned for their day; medical science and the art of surgery were, however, in an undeveloped state as compared with the present day, and the importance of environment for sick people was not then realised.

Two other great wars—the American Civil War and the Franco-German War—stimulated progress in hospital planning and construction, and, although medicine and surgery had advanced very greatly since the Crimean War, these later wars again brought out the advantages of fresh air in abundance and the speedy removal of foul emanations from the neighbourhood of the sick. Once more the efficiency of isolated buildings widely spaced was made apparent, and we find this type of ward unit adopted in the great hospitals in Berlin, Hamburg, St. Denis, Bourges, etc.

*The Development of the Modern Plan.*

Naturally during the last thirty years the advances in medicine and surgery, and more particularly in bacteriology, have had their effect upon the arrangement and construction of hospitals, though not to so great an extent as at one time seemed possible. Bacteriology has not discounted the value of fresh air and sunlight; it has explained and emphasised it. Lister's antiseptic treatment led to a more complete realisation of the value of aseptic conditions in wards and sick-rooms; and all parts are now designed so as to be easily kept clean. With solid walls and floors we have done away with innumerable dust-collecting and germ-breeding areas.

It is odd, by the way, that sash-framed windows have so long escaped general condemnation. Personally, I have discarded them altogether in favour of solid hard-wood or steel casements. Other forms are also being adopted. Sash windows, if required, can now be made entirely in metal.

The number and extent of administrative and other buildings not actually occupied or used by the patients has been largely increased in late years. We employ a large number of nurses, for whom more (and much better) accommodation is required. Engineering enters so much into the work and maintenance of a hospital that its buildings and equipment require much more room; and, what with baths, physical exercise halls, laboratories, and research rooms, the ward blocks tend to form a smaller proportion of the whole institution than was the case in earlier buildings.

Two notable attempts in planning of ward blocks have been made within the last thirty years—one to substitute circular wards for pavilions and the other to group all the wards together, as illustrated at the Belfast General Hospital. To these should be added the glass-cased cubicles of the Pasteur Hospital for treating different infectious diseases under one roof.

The idea of circular wards is not without fascination, but it has been adopted in but few cases. The costli-

ness of its construction—to say nothing of drawbacks in the way of supervision—is against its general adoption. It is useful in constricted sites and in the peculiar configuration of some urban hospitals.

Much, then, as the design and arrangement of modern hospitals has been affected by the advance of knowledge and practice, the importance of fresh air in abundance and the speedy removal of foul emanations from the neighbourhood of the sick are still fundamental. Light—and especially sunlight—is recognised as of scarcely less value. Add to these cleanliness in everything, from bedding to cooking utensils, and we have the main principles which form the basis of good hospital work.

Ventilation is but the means of keeping air fresh in enclosed spaces, heating a concession—and not always a wise one—to the debilitated forces of the sick and disorganised body; convenience of administration a question of economics.

A building—any building—is in itself an obstruction to light and air; but some means of shelter we must have against wind and rain and extremes of temperature. Subject to these limitations, the more air and sunlight we can get into our wards the better. Neither can be obtained in the fullest degree without fairly large areas of land and wide spacing of ward blocks, so that air can move in large volumes around, and, I may add, over and under the buildings with as little restriction as possible.

*Hospital Site Areas.*

In this country we are niggardly in the area of hospital sites, for the obvious reason that land is costly, especially in and around cities, where large institutions are required. It is, indeed, too obvious to inspire complete confidence in its finality. Take, for instance, two of the latest and most magnificent hospitals erected within the last few years—Manchester Royal Infirmary and King's College Hospital; the latter is not yet finished. Both Mr. Edwin T. Hall and Mr. William Pite ardently desired, I am sure, a few more acres to give them better scope for the realisation of their ideals in hospital design; and none of us can help regretting that those who are responsible for the selection of those sites confined themselves to the minimum, and (in the case of King's College) less than the minimum area required.

This minimum was fixed many years ago at one acre to fifty patients; but I can scarcely believe that it contemplated room for all the additional buildings required for out-patients and medical schools. It was also laid down at a time when the area occupied by administrative and other accessory buildings was very much less than that of the sick wards. At the present day the proportion has been considerably reduced, and, indeed, in the smaller hospitals the sick wards occupy the smaller space. I think we should have a new rule setting forth the area required for the pavilions exclusive of that occupied by accessory buildings.

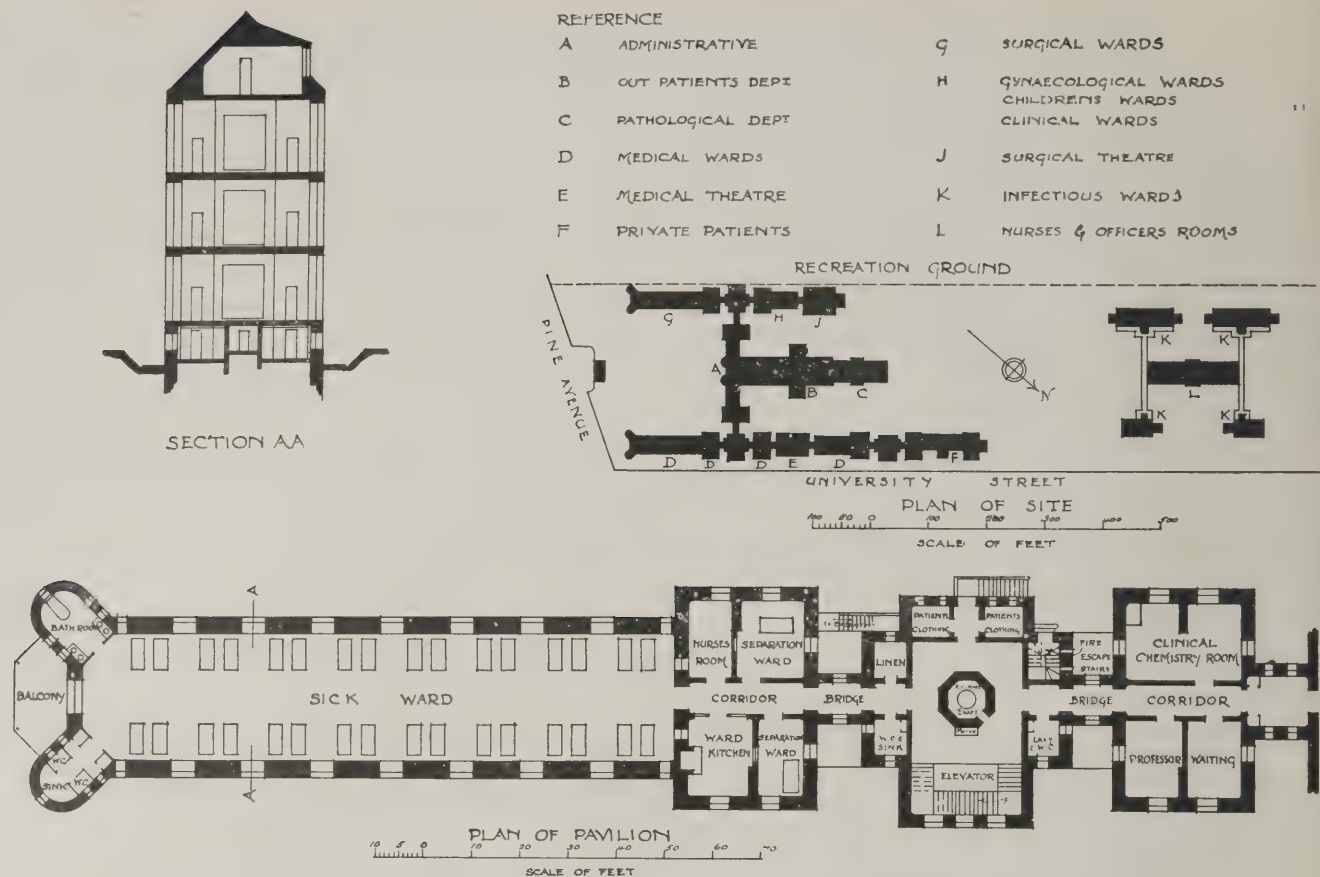
In both Germany and France they are generally far more generous in the matter of site areas.

At Hamburg (Eppendorf) the proportion is only thirty-seven beds to the acre, at Nuremberg forty, Berlin (Friedrichsheim) thirty-two, Charlottenburg thirty-seven, Heidelberg forty. In France there is St. Denis, twenty-six, Montpellier, twenty-seven. The Johns Hopkins Hospital at Baltimore, U.S., has only twenty-six to the acre.

In the treatment of tubercular disease fresh air and sunlight are of first importance. External heating is reduced to a minimum. Mechanical ventilation and heating would not even be considered. The patients

\* Extracts from a paper read before the meeting of the Royal Institute of British Architects held on February 17th.





ROYAL VICTORIA HOSPITAL, MONTREAL, CANADA.

THE LATE H SAXON SNELL, ARCHITECT.

are, indeed, trained to live in as cold a temperature as the resisting powers of their bodies will permit with safety; and there are indications that this treatment will be extended—more or less modified, of course, according to circumstances—to all diseases. Even pneumonia had been successfully treated in the open air under a verandah.

That air—and plenty of it—is of vastly more importance than temperature appears to have been shown again and again under circumstances in which no heating at all was possible.

#### *Temporary versus Permanent Structures.*

Mr. Snell then quoted expert evidence of the efficacy of purely temporary structures which almost suggested that palatial permanent buildings are quite unnecessary, if not wrong in principle. On the other hand, he continued, temporary structures are never very satisfactory as buildings, and they deteriorate quickly. There is no reason why permanent buildings should not be quite as efficacious for the cure of the sick and injured (which is the main object), if only they do not impede the free access of light and air. Both have, however, been subordinated to some extent to the supposed necessity for keeping up an equable temperature in wards. The open-air hospital may be impracticable in view of a number of considerations which cannot at present be conveniently ignored. Nevertheless, there seems to be every reason why ward buildings should be exposed as much as possible to the air and sunlight; and this can be properly achieved only with one-story pavilions widely spaced on the site and designed with few shadow-casting and air-obstructing projections. This has always been recognised in Germany and France.

I am told that the old one-storey wards of the Moabit are being replaced by three-storey blocks; and, indeed, it would appear that one-storey blocks are quite out of fashion in Germany, as may be seen in connection with some of the latest hospitals, though I am not forgetting the magnificent Virchow Hospital (Berlin), finished in

1906, which has one-storey blocks. In America, too, the newest hospital wards are two and three storeys in height; but, then, if I am not mistaken, mechanical ventilation is largely adopted.

I have premised that one-storey ward blocks without projections are to be preferred. If they are lifted well above the ground on arches, and either completely separated from other blocks, the air moves under, over, and around the whole exposed surface. They require a greater area of land than two- or three-storey blocks, but not at all in proportion, as I can show you by means of some rough diagrams made for the purpose. In each case I have allowed an air zone round each block equal in width to the height of the block. Thus the distance between any two blocks is just twice the height of one. You will notice, too, that the two- and three-storey blocks are larger by just the area of the necessary staircase. I may as well acknowledge at once that the distance between the one-storey blocks appears, nevertheless, to be inadequate, and in practice we should no doubt widen it if only as a matter of appearance.

#### *One or Three-Storey Blocks.*

We see, therefore, that one-storey blocks require only about 30 per cent. more ground than blocks of three storeys. Actually we should probably desire to space the one-storey blocks rather more widely, but then they would be even better for light and air.

This excess of 30 per cent. applies only to that part of the site occupied by ward blocks, and in case of a hospital for, say, 500 beds, would amount to an additional one and three-quarter acres. At £1,000 per acre, that would mean a little over £1,750, a very small proportion indeed of the total cost of the hospital. At £10,000 per acre it would mean £17,500 out of a total cost of, say, £250,000.

Apparently the length of corridor to be traversed from the two wards furthest apart is much greater in the case of one-storey blocks, but if the flights of stairs necessary for two or more storeys are measured in, there



is very little difference; and we may also remember that the labour of mounting stairs is very much greater than walking on the flat—about twenty times, I believe. Of course, we have lifts, but they cost a good deal to instal, maintain, and run. Without lifts the balance is largely in favour of one-storey blocks. Both time and energy are saved, as well as general upkeep and cleaning. More dirt collects upon staircases (and it is less easily removed) than in straight corridors.

Then as to the cost of the actual buildings. A two- or three-storey block is no doubt rather less in cost, cube for cube, than a single-storey block, because the cost of roof and foundations is about the same for three storeys as one. On the other hand, walls are thinner and foundations less, and neither lifts, staircases, nor fire-escape staircases are required for one-storey blocks, and the cost of these items goes a long way towards redressing the balance.

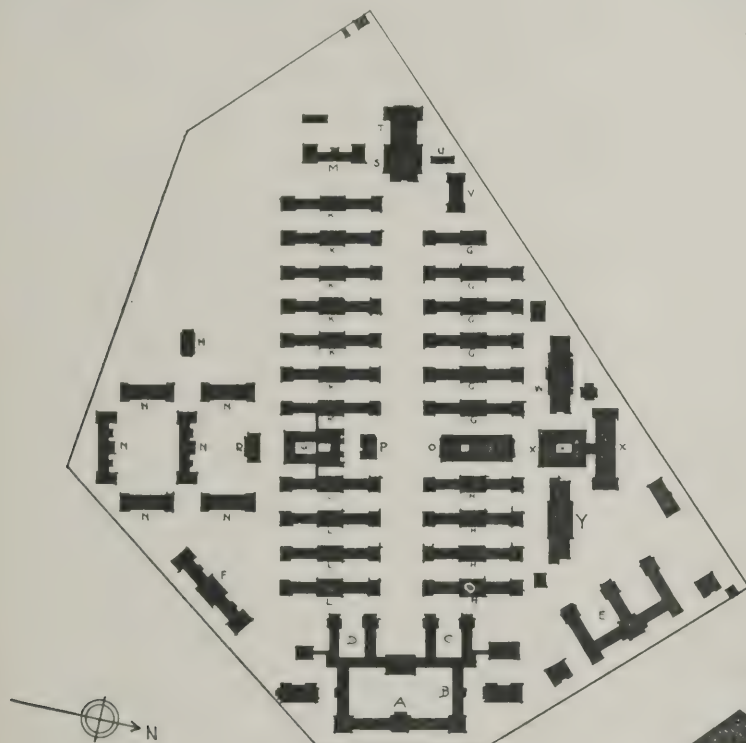
In one-storey blocks the ward is practically surrounded by air. In three-storey blocks one at least of the wards has only its sides and ends exposed.

A real sun room or balcony can be obtained at the south end without the disadvantage of overshadowing a lower ward. It is also possible to secure direct and powerful extraction shafts for foul air at the top and along the centre of the ward, which is certainly the best position. No light-obstructing and hideous fire-escape staircase or bridge is required.

Lastly, it lends itself to a cross-section of the wards, which for purposes of ventilation appears to be almost ideal—i.e., the "forme ogivale" adopted by Tollet in several French hospitals—practically a Gothic arch and about 25 ft. from the floor to the apex. His wards are also raised six or eight feet above the ground. Therein he overdid the principle, for the administration found later that this space under the wards could be easily closed in and usefully converted into stores, etc.

The extreme height of 25 ft. seems unnecessary, too; as in enclosed spaces there is but little movement of the air beyond a height of 12 ft. above the floor level a modification of this section was adopted with good results in one of the wards at Charing Cross Hospital; and I may add that it has been found that the ventilation and temperature in this ward are more easily controlled than in the others which have the usual flat ceilings.

[With Mr. Saxon Snell's kind permission we are able to reproduce block plans and ward units of the Virchow Hospital, Berlin, and of the Royal Victoria Hospital, Montreal, and a sheet of drawings giving a comparison of the areas covered by some of the most important British, Continental, and American hospitals. Referring to the hospital at Montreal, Mr. Snell said that, although some years had elapsed since its erection, in his opinion its plan had never been improved upon.]

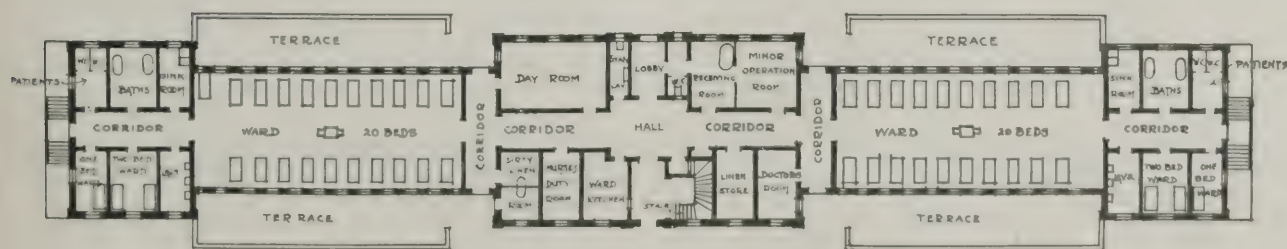


## REFERENCE.

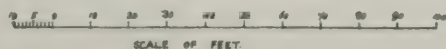
A	ADMINISTRATIVE BLOCK
B	NURSES HOME
C	GYNAECOLOGICAL DEPARTMENT
D	MATERNITY DEPT
E	SKIN AND VENEREAL DISEASES. (MEN)
F	D° D° (WOMEN)
G	MEDICAL DEPT (MEN)
H	D° D° (WOMEN)
K	SURGICAL DEPARTMENT (MEN)
L	D° D° (WOMEN)
M	VIOLENT PATIENTS PAVILION
N	INFECTIOUS DISEASES
O	BATH HOUSE
P	DISPENSARY
Q	OPERATION HOUSE
R	RONTGEN HOUSE
S	PATHOLOGIC ANATOMICAL INSTITUTE
T	MORTUARY CHAPEL
U	ANIMA HOUSE
V	DISINFECTION BLOCK
W	KITCHEN BLOCK
X	BOILER AND ENGINE HOUSE
Y	LAUNDRY BLOCK



SECTION



PLAN OF PAVILION



VIRCHOW HOSPITAL, BERLIN.

## HERE AND THERE.

WITH only a single page left, and 160 years of architectural biography yet to review, it is obvious that a little cannot be said of everybody, and not much about anybody. But certainly, as coming next after Gibbs, space must be found for a word about the Woods; so I will say that their work, as part of a fine scheme, enables Bath to boast herself the most architecturally coherent city in the Kingdom. The elder Wood was not a Bath man, but a Yorkshireman who came south. Another eighteenth century architect whose work has coupled his name with that of a city is Carr of York. He took up architecture after having had a practical training as a building artisan, and so successfully carried on his practice that he and James Paine shared between them all the chief work in the north of England. A country mansion—Harewood House—was perhaps Carr's best achievement, just as Prior Park was the elder Wood's.

A string of more or less indifferent architects now come into view, and are best disposed of in parentheses, thus—Ripley (whose Admiralty block has been continually decried since the "wicked wasp," Pope, penned his vicious lines, but is nevertheless a very fair building); Essex (irreparable destroyer of fine old work at Cambridge); Vardy (who might have built the British Museum if the Trustees had not set aside the designs they commissioned him to prepare, and bought Montagu House instead); Ware (above the level of his day, as No. 6, Bloomsbury Square shows); Flitcroft (brought to the notice of the Earl of Burlington, and thus to fame, through falling off a scaffold and breaking his leg); and Sir Robert Taylor (architect of Stone Buildings, Lincoln's Inn, predecessor of Soane at the Bank of England, and maker of a fortune of £180,000—most of which he bequeathed to Oxford University for founding a school of modern European languages—the Taylorian Institution).

The ubiquitous Scot confronts us again in Robert and James Adam, who have already said so much about themselves, and others have said tenfold more, that all the main facts of their prosperous careers are familiar; but I would not pass without notice the interesting item that when making the Adelphi out of waste ground the canny Brothers imported from Scotland some hundreds of workmen who were prepared to accept less wages than English artisans, and with them came half a dozen pipers to keep up the national feeling! These pipers, as the author of "Pilgrimages to London" records, played daily while the work was in progress, "and as the sweet chords of the classic lyre of Orpheus are said to have moved inanimate objects, so arose the Adelphi to the squeak of Scotch bagpipes." After a while, however, the solace of music was not sufficient to compensate for a reduced sum on pay day, and, the northern workmen becoming obstreperous, their place had to be filled by Irishmen who were prepared to work for less than ordinary rates, and could dispense with the pibroch. But it seems impossible to go on long without Scotsmen, and so, once again, we have to notice that Sir William Chambers, even though born in Stockholm, was the son of a Scotch merchant there.

The whole nineteenth century yet remains to be dealt with, and as we know more about every single architect of note who lived during that wonderful time than we do about a score of the great architects of the preceding century, it is obvious that in the space of half a column there can be but a mere passing reference or two. Soane, Nash, Smirke, Burton, Wilkins,

Elmes, Greek Thomson, Cockerell, Inwood, Pennington—packed biographies of Classic seekers here; followed by a flaming line of Gothic Revivalists—Pugin, Street, Barry, Burges, Butterfield, Scott, Sedding, Peirson, Brooks, and a dozen others who flickered out with the fire; and then the architects of yesterday and the day before—Nesfield, Bentley, Brydon, Garner, Bodley, Shaw. It is quite too impossible a task to attempt to touch the details of these many lives. I will therefore content myself with the mere fact that Shaw, the last of the great dead, never copied a letter, so pronounced was his self-confidence. Mr. Arthur Keen, who was intimate with his methods, tells us that only one letter of Norman Shaw's did he ever remember to have had the honour of being copied. "It was a long one, and copied by his own hand; a letter that must have given the client to whom it was addressed material for reflection, and some perturbation (to use no stronger word), for a very long time; a letter that had the immediate effect of producing what was required, though addressed to one in a high social position, accustomed to autocratic rule in all directions."

Coming lastly to architects of the present day, I must exercise great discretion, else unwittingly I may give offence, or, worse still, may stumble on a libel. In the face, therefore, of so threatening a prospect, I will not trust to what I may know of men and matters, but will do no more than turn the pages of "Who's Who." The list, however, is sadly incomplete. Of Mr. Ernest Newton, Mr. Dawber, Mr. Leonard Stokes, Mr. Detmar Blow, Mr. Rickards, Professor Lethaby, and others equally well known, there is not a word—which must be accounted to them for modesty, or regarded as a lack of perception—by the publisher—of the relative merits of modern architects. Last week's Royal Academician Mr. Lutyens, has eight lines to his credit, from which by a little computation, I learn that, though having achieved such greatness, he is only forty-four. Mr. Belcher is allotted three lines only, and these so barren that they give no more than his address and his club. A goodlier allocation is Mr. Halsey Ricardo's who rejoices in 20 lines; and then the swelling paragraphs proceed to give Mr. Sydney Perks 21, Professor Blomfield 23, Sir Aston Webb 25, Mr. Basil Champneys and Professor Beresford Pite 26 each, Sir Ernest George 33, culminating in a glorious burst of 42 lines for Mr. Edwin T. Hall: which abundance reflects honour on the profession, in view of the fact that Sir Edward Grey has to be content with 16 lines and Mr. Asquith with 23, while even the multifarious achievements of Mr. Bernard Shaw occupy no more than 24 lines! The major portion of the architectural biography in "Who's Who" is concerned with lists of buildings, but there are a few items of personal interest which come very appropriately into the scheme I have followed during these three weeks. Thus I learn that both Sir Aston Webb and Sir Ernest George were born in London, the former being now sixty-two and the latter seventy-four. But perhaps the most interesting information is given against "recreation." Professor Blomfield's is frankly athletic—"shooting and cricket," Mr. Colcutt's an association of head and hands—"chess and gardening." Mr. Halsey Ricardo's "recreation" consists apparently in "listening to music, and idling in the country"; but this whimsical combination pales in comparison with Professor Beresford Pite's, the nature of which has to be deduced from the statement that he has been "for many years a member of the London Diocesan Conference."

UBIQUE.



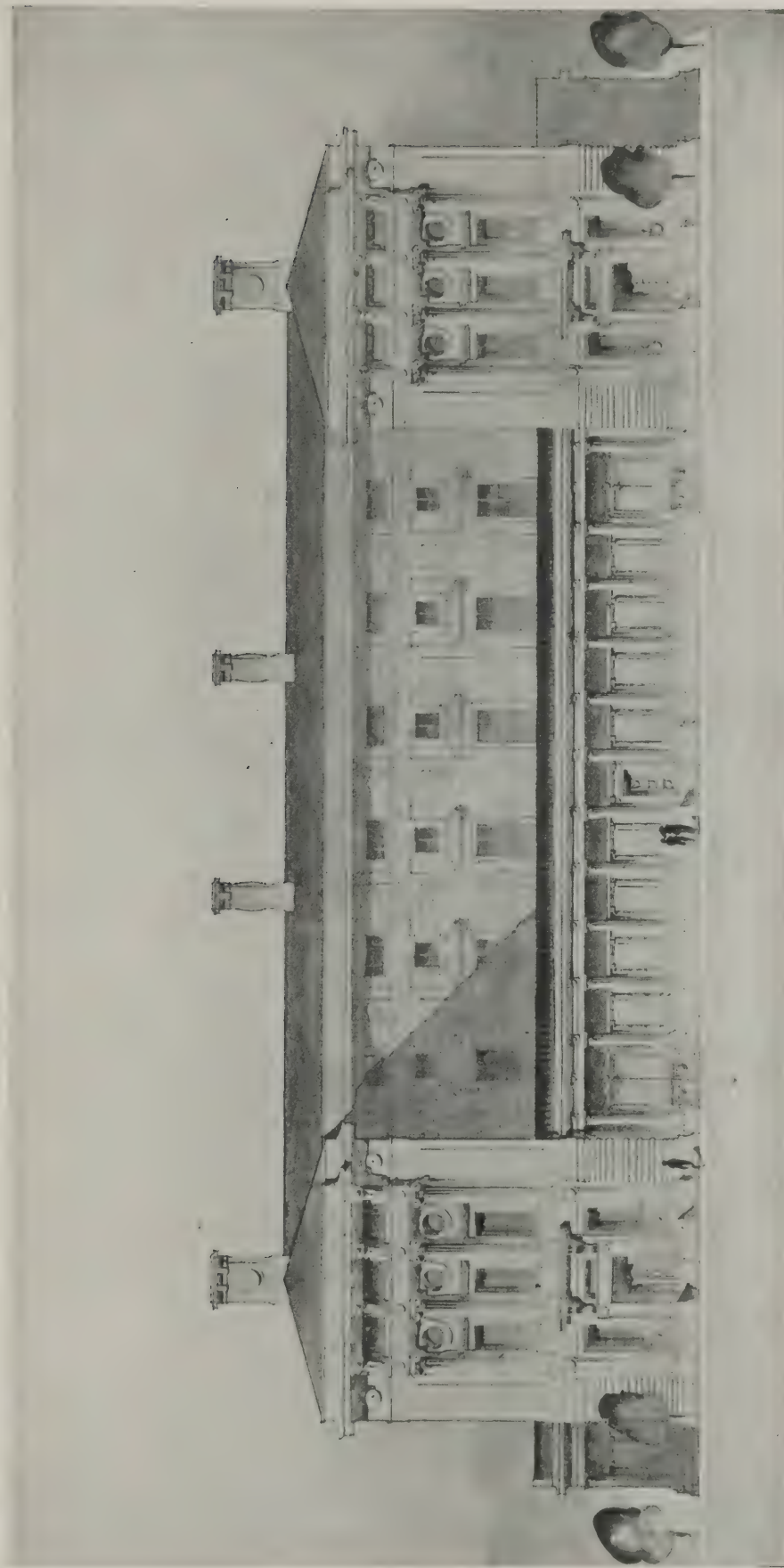


PALAIS DE JUSTICE, BRUSSELS: DETAIL OF VESTIBULE, WITH BUST OF THE ARCHITECT, J. POELAERT.





STUDENTS' PAGE.



TESTIMONIES OF STUDY FOR R.I.B.A. FINAL EXAMINATION: APPROVED DESIGN, SUBJECT VI. (a).—A COLONNADED SCREEN. BY C. RIPLEY.

(See page 255).

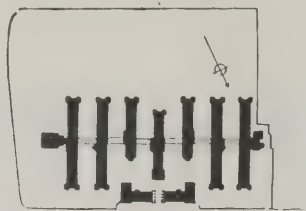




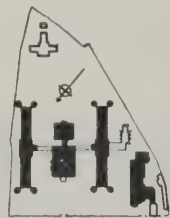


DETAILS OF SCULPTURE FROM THE OPERA HOUSE, PARIS—VII.

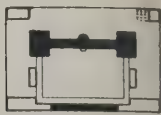
(See page 255.)



*Herbert*  
658 Beds



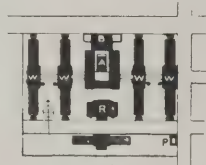
*Norfolk & Norwich*  
218 Beds



*Tendon Proposed Hospital*



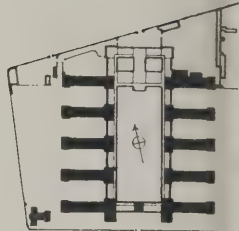
*Blackburn*  
154 Beds



*St Marglebone*  
744 Beds



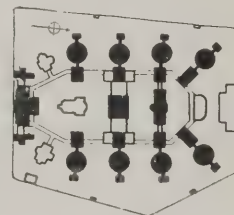
*St George's Union*  
809 Beds



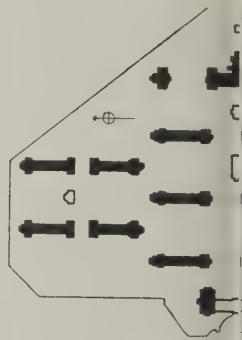
*Lariboisière*  
606 Beds



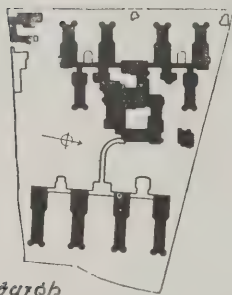
*Leeds*  
328 Beds



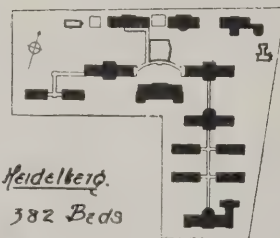
*Antwerp*  
388 Beds



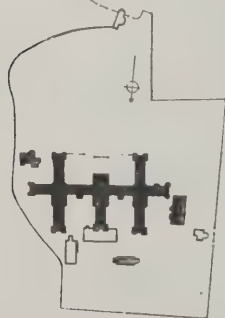
*Berlin*  
624 Beds



*Edinburgh*  
586 Beds



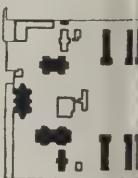
*Heidelberg*  
382 Beds



*Glasgow*  
388 Beds

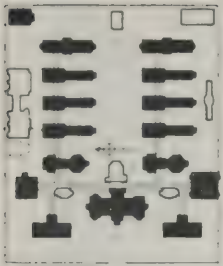


*Amersfoort*  
78 Beds



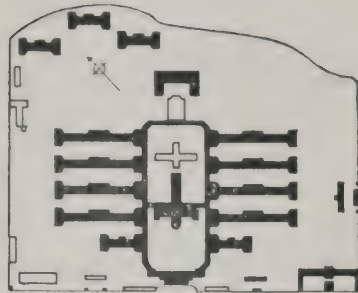
*Lincoln New Hospital*





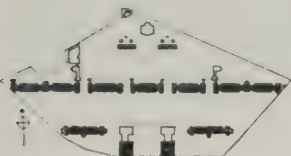
Johns Hopkins, Baltimore.

378 Beds



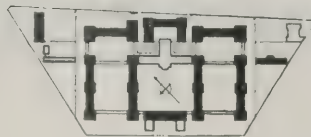
St. Eloi, Montpellier.

600 Beds



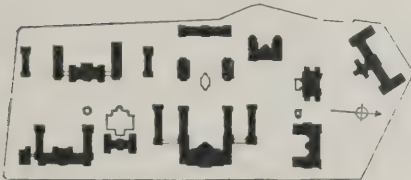
St. Denis

166 Beds



Tenon - Paris

726 Beds



Halle, University.

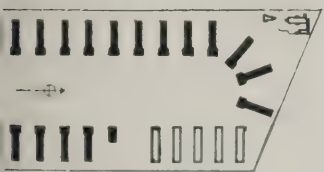
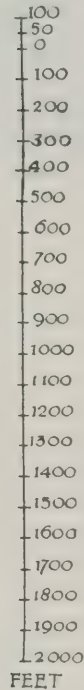
496 Beds



Hotel Dieu, Paris

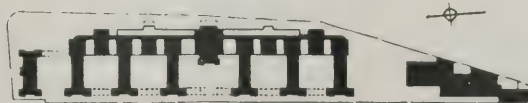
566 Beds

FEET



Berlin.

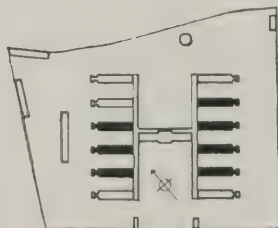
100 Beds



St. Thomas

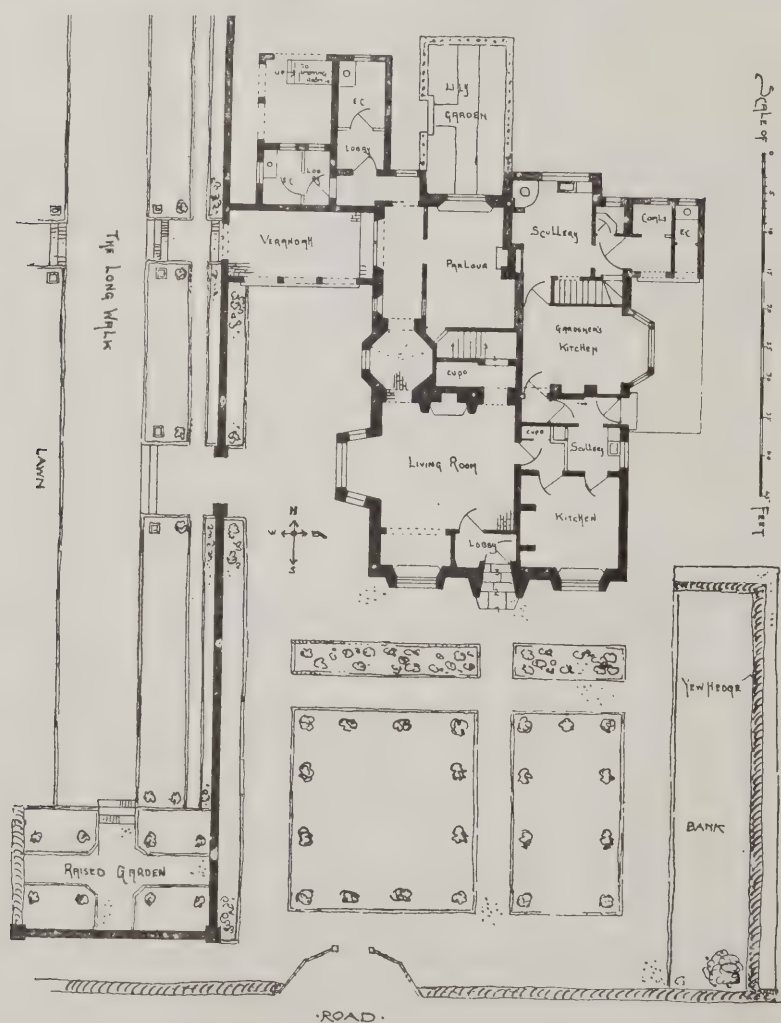
588 Beds

Bourges



332 Beds

AN HOSPITALS (ALL DRAWN TO THE SAME SCALE).



MODERN SMALL HOUSES. XIX.—"THE COPPICE," COOKHAM DENE, BERKSHIRE.  
T. H. LYON, ARCHITECT.

(See page 255.)





*Photo : Topical Press.*





THE UNION STATION, WASHINGTON, U.S.A.







## CORRESPONDENCE.

*The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents.*

*Correspondents are asked to be brief and to write on one side only of the paper.*

*The Prix-de-Rome Jury.*

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—I notice on p. 210 of your issue of February 19th a paragraph referring to the Prix-de-Rome Jury.

On this subject I venture to send you some further details which may be of interest to your readers.

The Prix de Rome for Painting, Sculpture, Architecture, Engraving, and Music are controlled by the Académie des Beaux-Arts, and the award in the final competition in each case is made by the general assembly of all the sections of the Académie—that is to say, the Grand Prix de Rome for Architecture, for instance, is judged by painters, sculptors, engravers, musicians, archæologists, etc., as well as by architects; and, in the same way, the last named have their voice in the matter when it comes to judging of the prizes for music and the other arts.

The preliminary competitions for the prizes, however, are judged independently by the members of the respective sections, together with a certain number of artists selected for this purpose from outside the Académie. These additional adjudicators are elected by ballot; the members of the particular section having nominated a number of candidates equal to half their own number, and the whole Académie a number equal to half this number again. In the case of Architecture, there are nine members of the Académie. There are four candidates nominated by the architect members, and two candidates nominated by the whole Académie. The number of assistant adjudicators to be elected is four. It is the names of these (MM. Deglane, Defrasse, Bénard, and Lambert, with MM. Marcel and Tournayre as supplémentaires) which are announced in the above-mentioned paragraph.

Among the members of the Académie whose names will be familiar are: M. Pascal, the *doyen* of French architects; M. Laloux, the architect of the Gare d'Orléans, on the Quai d'Orsay, Paris; M. Bernier, architect of the Opéra Comique, Paris—all three "patrons" of big ateliers and hon. corresponding members of the R.I.B.A.; M. Cordonnier, the architect of the Peace Palace at La Hague; and M. Girault, architect of the Petit Palais, Paris.

Brixton, S.W.

ROBERT W. CABLE.

*"The L.C.C. Architect's Department."*

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—On page 216 of your last issue you refer to me as "the late," and also convey the impression that the schools were designed by the staff under my direction. Both these statements are incorrect.

It may be of some interest to state that I had made it a condition of my appointment to have an absolutely free hand as to my assistants.

E. R. ROBSON, F.S.A., F.R.I.B.A.

Westminster.

## THE SMALL SUBURBAN HOUSE COMPETITION.

THOUGH the last day for receiving designs is a fortnight hence—March 19th—certain eager competitors have already sent in their plans for a semi-detached suburban house suited to the requirements of a small middle-class household—the subject of the competition we have instituted, with premiums of 5, 3, and 2 guineas. The conditions were given in

full in our issue for February 19th. Last week we answered a number of queries as to details which did not seem to be clear to some competitors, and to the explanations already given are now added the following, in answer to further queries that have reached us:—

N. K. J. (Isle of Wight) writes:—"Would a black-and-white ferro-gallic print be admissible?"

No, because a ferro-gallic print does not give black lines, but dark violet ones, and these would not reproduce satisfactorily.

H. H. W. (Birkenhead) writes:—"Are the plans required for the right-hand house (ground floor), with first-floor plan of left-hand house, or of the left-hand house, ground and first floors?"

Some competitors, we fear, do not take the trouble to read the conditions carefully: in condition No. 9 it is expressly stated that the two plans are to be "of the right-hand house of the pair."

E. R. D. (Northampton) writes:—"Will drawings be returned to competitors?"

Yes, if stamps are sent for postage.

## SCULPTURE ON PARIS OPERA HOUSE.

THE masks from the Paris Opera House which are illustrated on page 251 are used on the entablature of the main façade. It will be seen that a butterfly, a peacock, an elephant's head, snakes, and other forms associated with Greek mythology distinguished the heads.

## R.I.B.A. PROBLEMS IN DESIGN.

ON page 249 we reproduce a design for a colonnaded screen by Mr. C. Ripley, recently approved by the Board of Architectural Education. The conditions stated that the screen was to be 100 ft. in length, joining two wings of a public building 60 ft. in height; with two carriage entrances through it.

## MODERN SMALL HOUSES.

"THE COPPICE," Cookham Dene, illustrated on page 254, is built of brick finished with fine rough-cast; the roof being mostly of old red tiles. The living-room and passage are paved with 8 in. by 2 in. by 2 in. specially-made red bricks, and the verandah is laid with blue Staffordshire paving bricks.

The architect was Mr. T. H. Lyon, of Ilminster (South Devon) and London, and the builders were Messrs. Cooper and Sons, of Maidenhead.

## THE UNION STATION, WASHINGTON.

THE new Union terminal station at Washington, illustrated on the centre plate in this issue, is set in a semi circular plaza 1,000 ft. long and 500 ft. wide, embellished with terraces, balustrades and fountains, and forming the centre for a series of radiating avenues. The main building is 650 ft. long, 220 ft. wide, and from 65 to 120 ft. in height, the three entrance arches in the central pavilion, 50 ft. high and 30 ft. wide, overshadowing in their dimensions their source of inspiration—the triumphal arch of Constantine. The six massive columns which carry the cornice of the main entrance are surmounted by allegorical statues by Saint-Gaudens. The entire conception is on a gigantic scale, the total cost having amounted to £4,000,000. A plan of the station and its approaches is given on page 258.



## AN EXPERIMENT IN COTTAGE BUILDING.

BY W. J. SWAIN.

*In response to our invitation, the following particulars have been courteously supplied by Mr. W. J. Swain with reference to the concrete cottage which he has designed on behalf of Messrs. Rowntree, at York, and which has been built at the extraordinarily low cost of £88 12s. 8½d. The cross-headings are ours.*

AS requested by you, I have pleasure in giving detailed particulars of the concrete cottage built by Messrs. Rowntree of York from plans prepared by myself, as an experiment to solve the question of cheap, well-built, sanitary cottages for agricultural labourers. Having designed very largely, and erected numerous structures in reinforced concrete, I was convinced that, if we would build cheaply and well, undoubtedly this is the material to which architects will have to look for cheapness combined with durability; and the example that I here set forth will, I trust, go a long way to show that there is a very great future for concrete generally.

*Selection of Materials.*

It must, of course, be borne in mind that concrete work must be well done, and that exceptional care must be taken in the choice of materials and proportions if you are to have good results. The general architect is often inclined to look askance at concrete, because his experience has taught him that in all probability he will be troubled with expansion cracks and dampness, especially with regard to flat-roof construction. From practical experience I am able to state that, with the proper selection of materials and the use of Portland cement which will pass in every respect the British Standard Specification, there is little fear of these troubles arising.

*A Common Mistake.*

The great mistake often made in connection with concrete work is that of using either too great a proportion of cement or too little. Some men seem to think that if they crowd their materials with a rich mixture of cement they will produce good results, but this is a fallacy. Each particle of aggregate should be thinly coated with cement grouting, and the interstices filled with the smaller proportions of aggregate, and not cemented together with lumps of pure cement as is often the case, when you are sure to have difficulty with uneven expansion. As a similar case in point, no joiner would think of putting a thick layer of glue to obtain strength when jointing up his woodwork.

*Concrete for Roofs.*

Concrete for roofs should be composed of gravel or the like impervious stone. I have found the most simple and satisfactory method of obtaining proper proportions of aggregate is to pass the gravel through a screen having a circular mesh of  $\frac{3}{4}$  in. diameter, and grading the aggregate down from  $\frac{3}{4}$  in. to pea size. Put this clean wetted gravel into a bucket, filling level with the top, and into this pour a sufficient quantity of water to fill up the interstices to overflowing. The proportion of water necessary to fill the bucket in bulk is the proportion of sand to be added to the gravel. Both sand and gravel must be well washed and free from any foreign matter. Having obtained the proportions of sand required to mix with the gravel, the best proportion of cement is 1 to 6 in bulk. If these instructions are carried out and the concrete is thoroughly wetted in

the mixing, and kept wet for a few days, there is little fear of leaky roofs.

*Variation of Expansion.*

The usual cause of unsatisfactory concrete work has been the contractor taking very little heed of the concrete because he intends facing same with a fancy finish. This on no account must be done if you would have good sound work. The architect must insist upon the concrete being put down in a thoroughly wet mass, and when it has sufficiently set to allow trowelling, the original surface must be well trowelled with a metal trowel. If you allow your concrete to set and follow on with a rich mixture of fancy topping you are sure to get a variation of expansion, and invariably you will find expansion cracks, and in many cases the finishing coat will leave the body of the concrete.

*Mixing, Moulding, and Finishing.*

The experimental cottage here illustrated was constructed in every way to pass the local by-laws of York. The external walls are 9 in. thick. There was, of course, no necessity to use such a thickness, as I have built a two-storey house at the seaside where the walls are only 4½ in. thick, but the by-laws of York would not allow me to reduce. I therefore cast blocks in moulds, as shown in the accompanying photograph. The method of obtaining a rough-cast finish was got by putting a thin layer of sand at the bottom of the moulds, embedding into some sharp, clean basic slag, and then about 4 in. of good solid gravel concrete. The mould was then filled up with concrete composed of clean screened boiler ashes. The ash concrete was used for two purposes—first, because it was cheaper than the gravel; and, secondly, because it forms a good surface for skimming over with plaster and prevents condensation to the walls. This course I adopt also for the reinforced con-

crete flat roofs. When making your slab put down 1 in. at least of good ash concrete and cover over immediately with the gravel concrete. This gets over any difficulty experienced with extreme variations of temperature. The internal walls were made entirely of ash concrete 2½ in. thick, and a mould and sample block are also to be seen in the photograph.

Having described concrete generally and the methods of building blocks, I will proceed with the *modus operandi* for constructing a cottage.

*How the Cottage was Constructed.*

Strip off the vegetable soil and fill in with hard clinker ashes or broken stone or other suitable material, lay over the whole of the site a 4-in. concrete slab composed of good gravel concrete, bring up the sides the width of the walls to 6 in. above the existing earth line. This forms a raft similar to an inverted box-lid. Care must be taken that the whole of the concrete necessary to form this slab and the sides shall be done in one day to prevent cracks or faulty adhesion. After a couple of days' setting you can proceed to lay the blocks forming the external walls. These walls, which have a very rustic appearance from the outside, have been smoothed off when cast on the internal face, so as to dispense with expensive plastering.

*Internal Work.*

In a number of cottages it would be quite sufficient to give these walls a coating of lime-wash or distemper, but in the cottage in question I had the walls lightly skimmed with a coat of lime-putty gauged with plaster of Paris. The windows were built in as the work proceeded, and the fascia was formed of solid concrete. This was done in order that I could embody small pieces of steel to stretch the wires for the reinforced concrete roof. The floor-boards come in useful for centering



EXPERIMENTAL CONCRETE COTTAGE, YORK.

W. J. SWAIN, ARCHITECT.



for the concrete roof. The concrete roof was composed of gravel concrete carefully graded and mixed 6 to 1. The wire reinforcement was then stretched across from side to side and the slab cast 4 in. thick with stiffening beams on the outside so as to dispense with expensive wood forms and also unsightly ceilings. This slab was trowelled after it was properly set, and has proved itself to be perfectly watertight, and has had as many as forty persons standing on the top at one time. Ash concrete was placed upon the gravel concrete floors to the necessary thickness, and the floorboards were nailed down to the same.

#### How to Get a Sound Floor.

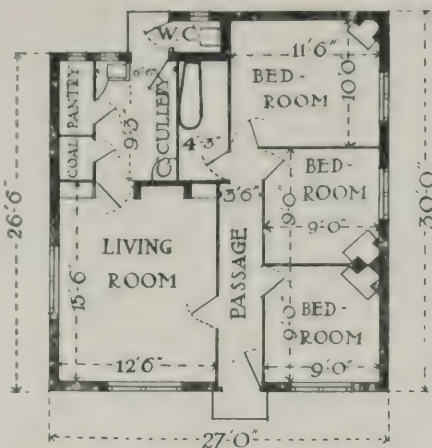
When fastening the boards to the breeze or ash concrete foundation, care must be taken that the boards bed down solid on to the concrete. If the concrete is not perfectly level, fine ash should be sprinkled over in order that there shall be no air-spaces between the boards and the concrete. The concrete must also be thoroughly dry before being covered with boards. Unless these two items are carefully watched you will be troubled with rot. My experience, especially with large factory work, is that, provided you have dry concrete and expel the whole of the air from under the boards you can get a thoroughly sound floor. Immediately you try to get a small air-space by inserting strips, as is often done, you will be troubled with dry-rot, which spreads very quickly in vitiated air.

#### Chimneys.

The chimneys were very carefully worked out to prevent down draughts by providing adequate openings on each side covered with concrete slab. It is often said that low-shaft chimneys will not draw, but I have had no difficulty, although this cottage is placed in low land at the bottom of an orchard and is surrounded by tall trees and higher buildings.

#### Fittings and Sanitation.

The living-room is provided with kitchen range, and the copper in scullery is built at back of the range with specially constructed flue and damper, so that the water in copper is heated by the fire of range. From the copper a pipe is fixed so that hot water can be discharged into the bath. In this case I constructed a w.c., as earth closets are not allowed, but the cost given does not include drainage, as the cost of w.c. pan, seat, and cistern complete is more than



cost of ordinary earth closet or privy, which would be the case if erected, as intended, for farm-labourers.

#### Schedule of Cost.

I give herewith figures showing the sizes of rooms, etc., and the exact cost for labour and materials. I must here state that no charge has been made for the boiler ashes, which were supplied free, but I had to pay 1s. per load cartage, which is included in cartage account. This cottage has been viewed by persons interested in the housing problem from all over the country. The Right Hon. Walter Runciman also paid it a visit and expressed great satisfaction with the accommodation and appearance.

#### EXPERIMENTAL COTTAGE.

##### Sizes of Rooms.

Living Room ...	15 ft. 6 in. × 12 ft. 6 in.
Scullery .....	9 ft. 3 in. × 6 ft. 6 in.
Larder .....	5 ft. 2 in. × 2 ft. 6 in.
Coals .....	3 ft. 6 in. × 2 ft. 6 in.
Bath Room ....	9 ft. 3 in. × 4 ft. 3 in.
Bedroom .....	11 ft. 6 in. × 10 ft. 0 in.
" .....	9 ft. 0 in. × 9 ft. 0 in.
" .....	9 ft. 0 in. × 9 ft. 0 in.
Passage .....	15 ft. 6 in. × 3 ft. 6 in.
Height of Rooms, 8 ft. 6 in.	

##### PRIME COSTS.

	Labour.	£	s.	d.
Labourer .....	13	10	7½	
Bricklayer .....	7	10	6	
Carpenter and Joiner .....	8	16	0½	
Painter .....	0	13	4	
Plasterer .....	1	8	10	
Plumber .....	0	17	6	
Cost of Labour .....	£32	16	10½	
Cost of Materials .....	55	15	10	
Total Prime Cost .....	£88	12	8½	

##### Materials.

Sand—	18	15	3	0	at 3s. 3d. ton	3	1	1
Gravel—	10	6	0	0	at 6s. 6d. ton	4		
	5	8	6	0	at 6s. ton =			
					£1 12s. 0d. ....			
Slag	2	18	3	14	at 7s. 6d. ton	1	2	2
Steel (round mild)—	2	2	25	—	½ in. at 10s. 4½d. per C =	2		
	1	2	25	—	½ in. at 8s. per C			
					13s. ....			
Cement—	5	tons	Portland	at 35s. 8d per ton =	£8	18s.	4d.	18
	5	9-ton	ditto,	at 31s. 7d. per ton =	£9	6s.	5d.	
Pudlo—	5	lb.	at 1s. 6d. per lb.		0	7	6	
Bricks .....	0	18	6					
Ironmongery .....	2	1	11½					
Timber .....	10	4	3					
Bath .....	1	16	6					
Set Pot .....	0	8	2					
Kitchen Range 3 ft. 6 in. ....	1	15	6					
Sink 24½ × 16 Complete .....	0	8	6					
W.C. Pan Seat and Cistern .....	1	1	9					
Sanitary Pipes and Bends .....	1	1	0					
Paint .....	0	4	5½					
Plaster .....	0	13	8					
Putty Lime .....	0	11	4					
Plumbing Materials .....	4	10	7					
Carting .....	1	4	0					

Price of contract we had for cement advanced afterwards to 35s. 8d. per ton.

#### SOME COLLEGE EXTENSIONS IN CAMBRIDGE.

It is becoming increasingly difficult to provide room for extension of Cambridge colleges. At Queens', the problem has been happily solved by the removal of a mean row of almshouses on the west side of the Lane. The charity was endowed by Andrew Dokett, the first President, and it is now to take the form of weekly pensions. Architecturally, the founder is commemorated in a much more impressive way than before in the new range, and his statue fills a niche on the east front. The whole scheme is a happy combination of reverence for the past with care for the present and future. The buildings were designed by Mr. Cecil G. Hare, and carried out by Messrs. Rattee and Kett; they provide accommodation for twenty-six men, and also include bursary, guest room, clerks' offices, and bathrooms. The style may be described as late Tudor, and, as was frequently the case at that period, the material is red brick with stone mulioned windows and dressings. The bricks, from Clare, in Suffolk, have a charming colour and texture; the stone is the well-known oolitic limestone from Clipsham, in Rutlandshire. The pointing of the joints is smeared to such an extent that the divisions between the bricks become more prominent than the bricks themselves. Whether this is advisable or not must be a matter of opinion. For our own part ("Cambridge Review"), we greatly prefer the absence of pointing at the School of Agriculture and the New Lecture Rooms, where the red brick walls are of great beauty.

A great change has taken place at the President's Lodge by the exposure of the timber framing. There can be no question that the building gains greatly in effect when viewed from a distance. Near



CASTING CONCRETE BLOCKS FOR EXPERIMENTAL COTTAGE.



to, the improvement is not quite so certain. The timbers are almost too irregular, and the marks of hundreds of nails are too painfully evident. Below the great oriel on the south side, foundations were discovered which suggested that columns had originally supported the window. Whether this was so or not, the addition of the four wooden columns is abundantly justified by their beauty and suitability. The garden front has been greatly improved by the shortening and lowering of the outhouse, which hid the beautiful brackets and the round-arched recess in the chimney breast.

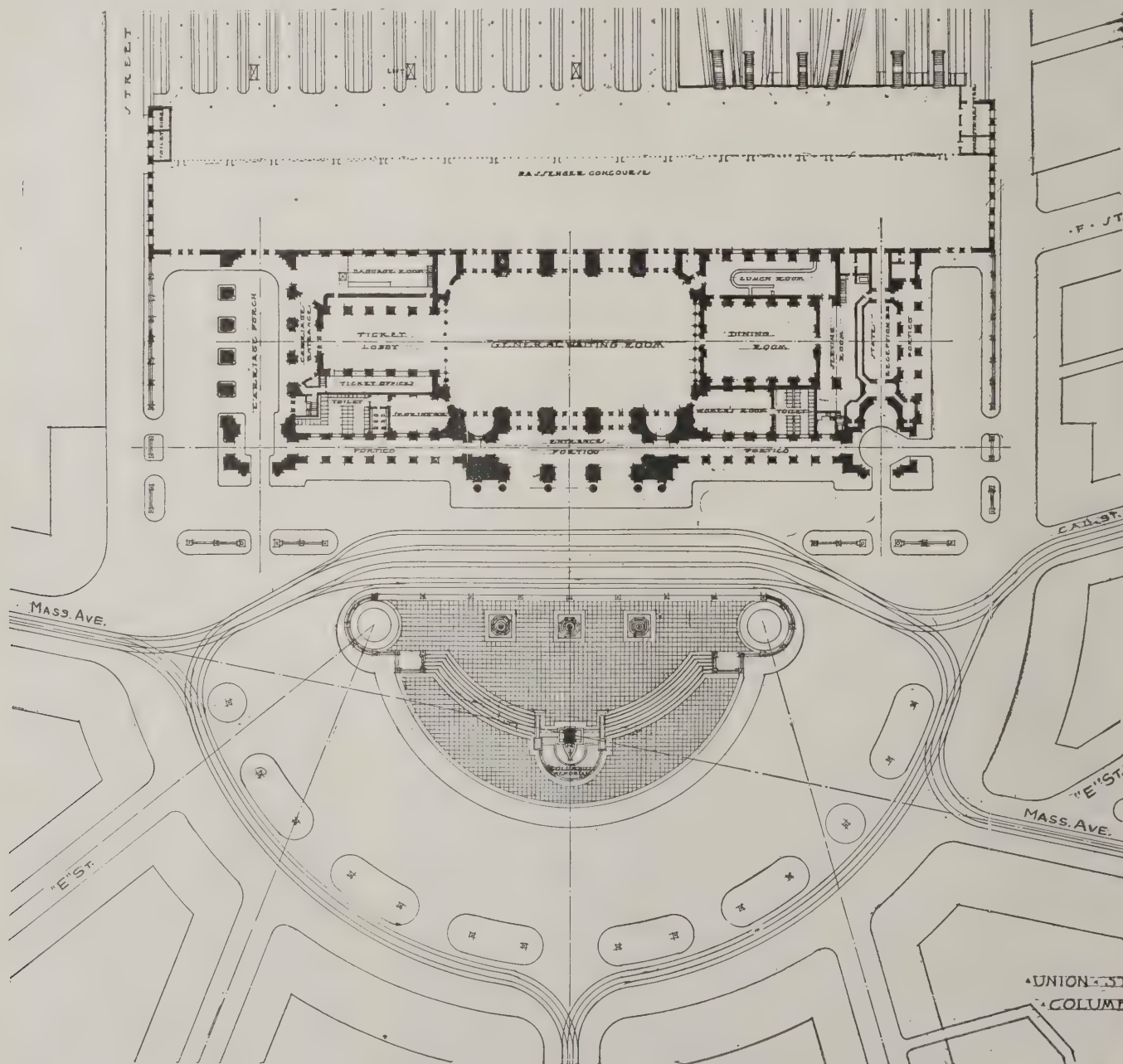
At Sidney Sussex College the accommodation in the chapel had for long been insufficient, and some extension was necessary. The chapel has been more than doubled in size, and great pains are being taken to make it worthy of its high purpose. The original chapel was formed out of some buildings of the Franciscan friary. It was pulled down in 1776, and a brick chapel was built by Essex, on almost the same site, pointing North and South. In 1833 the windows were altered to the poor Gothic form which is still to be seen in the ante-chapel and elsewhere in the col-

lege; stucco was added on the side facing the court, and a Gothic doorway was made. Such was the unpromising material on which the architect, Mr. T. H. Lyon, had to work. The treatment of the old details has been ruthless, though it may have been inevitable. Inside, the elaborate plaster-work of the walls and ceiling has been destroyed. The deal altarpiece has been removed and the poor deal stalls and screen are doomed. The design of the new work is Classic rather than Gothic, partly, we may suppose, on account of the original date of the College, and partly because Gothic precedent is often no longer sought, even in ecclesiastical buildings. Most of the windows are single round-headed lights, but the east window is a bold departure from convention—circular, with rosetted cross-bars. A very effective feature is the chapel on the west side (in memory of Bishop Hicks), separated from the main building by an arcade and surmounted by an upper storey of the same type. The pavement is the most elaborate in Cambridge, and consists of some fine marbles from Connemara, Devonshire, and elsewhere.

The Clergy Training School have lately

added to Westcott House and are intending to build a large block on the east side of the garden. The new buildings, of brick and stone, join on to the south-west corner of the gateway and include hall and kitchen, two sets of men's rooms, and a guest room; there are bathrooms in the basement. The architect is Mr. Hastwell Grayson, of Liverpool. The style is late Tudor, like the rest of the House, the hall having a large bay window on the east side.

Ridley Hall has completed its domestic buildings by a range at right angles to the chapel buildings, though not joined to them. They look too small to finish the college on the west side, although there are obvious advantages in keeping the north-west corner of the garden open. The chief material is Clare bricks. Teak is used for the staircases, and even for the sinks in the gyp-rooms. The "sports" are of oak. Little can be said about the style, for it obviously had to harmonise with the rest of this Tudor college. Variety and interest have been given by the two oriels and by the large bay in the middle running through all three storeys. The architect is Mr. William Wallace.



PLAN OF THE UNION STATION, WASHINGTON, AND ITS APPROACHES.

D. H. BURNHAM AND COMPANY, ARCHITECTS.

(See page 255.)



## PROJECTED NEW WORKS.

## LONDON DISTRICT.

The London County Council Building Acts Committee has recommended the Council's consent to the following proposed works:—

*City of London.*—Erection of a printing office and factory building to abut on Shoe Lane and Plum Tree Court, City, for E. Wood and Co., Ltd. (consent to deviation).

*Holborn.*—Erection of No. 9, Torrington Place, Holborn, for Lady Bunting.

*Kensington, North.*—Erection of addition at rear of Nos. 30 and 32, Princes Road, Notting Hill, on the application of Mr. J. Mackenzie.

*Kensington, South.*—Additions at Lancaster Lodge, Campden House Road, for Mr. E. Rossignol.

*Lewisham.*—Erection of a building on the north-western side of Brockley Road, Crofton Park, for Crofton Park Picture Palace, Ltd.

*Lewisham.*—Erection of ten houses on the western side of Perry Rise, for Perry Rise Land Company.

*Peckham.*—Addition to premises of Messrs. S. Jones and Co., on the northern side of Diamond Street, Camberwell.

*Building Scheme for East Birmingham.*

The Birmingham Town Planning Committee have had under consideration an application for approval of a building scheme in the East Birmingham area, on the site of the old allotments at Washwood Heath. The estate has an area of about 22 acres, and the idea is to erect 262 houses. The East Birmingham town planning scheme provides for the erection of twelve to fifteen houses an acre in this locality, and the committee had no hesitation in giving approval to the project.

*Manchester Infirmary Extension.*

The trustees of the Manchester Royal Infirmary have decided to build a new central branch, for accidents, at Gore Street, Piccadilly, at a cost of about £25,000.

*Medical School, Cardiff.*

Mr. W. J. Thomas having increased his munificent gift to £12,750, on condition that the building of the new medical school of the University College of South Wales shall begin within six months, these terms have been accepted, and it has been decided to adopt a site in Newport Road and to appoint an architect for the work.

*Housing Scheme, Bradford.*

Bradford City Council have decided to build 200 working-class houses in the Rooley Lane district.

*Naval Hospital, Pembroke Dock.*

The contract for the erection of the new naval hospital at Pembroke Dock has been secured by Councillor William Davies, J.P., contractor, of Tenby. The price is £15,000, and the work is to be completed within eighteen months.

*Workmen's Dwellings for Great Harwood.*

A public company is in process of formation with the object of erecting about 400 dwellings at Hindle Fold, Great Harwood. It is proposed to allot 200 yards of ground to each house, so that the estate will be developed on garden-city principles.

*Proposed New Theatre for Taunton.*

A company is being formed with the object of building a theatre, to be called the Lyceum, at North Town, Taunton.

The designs prepared by the architects (Messrs. Stone and Lloyd) show an auditorium to accommodate 800 people, the proscenium being 30 ft. wide, and the stage 24 ft. deep.

*Housing at Tendring, Suffolk.*

Tendring District Council have adopted the plans prepared by Mr. Vincent Brown for working-class dwellings to be built under the provisions of the Housing and Town Planning Act, and are applying to the Local Government Board for a loan of £2,000 to be applied to this purpose.

*Workmen's Dwellings at Woodstock.*

The Duke of Marlborough has laid the foundation stones of six workmen's dwellings at Woodstock, of which he has given the site, while arrangements have been made for the owners to borrow four-fifths of the money required for construction. The cottages comprise kitchen, living-room, scullery, and three bedrooms.

*Esplanade, Southend.*

The Southend Town Council last week decided to complete the western esplanade scheme at a cost of £30,000. The entire promenade will be eight miles long.

*A Hundred New Houses for Walney.*

In connection with the scheme for providing more houses in the borough, suitable for the working classes, 100 houses are to be built at Walney, and no time is being lost in pushing forward the work. Building operations have already commenced, the contractors being Messrs. Rainey Brothers, and it is expected some of the houses, which are to be of similar type to those already on the island, will be ready in June. Preparations are being made to push forward the Old Barrow scheme as early as possible, provision being made for close on 250 houses on the Cavendish Park site.

*Building Activity at Coventry.*

At last week's sitting of the General Works Committee of Coventry City Council, nearly fifty schemes for building work were approved, most of them relating to the erection of dwellings.

*Reinforced Concrete Bridge, Clacton-on-Sea.*

The Clacton-on-Sea Urban District Council is applying to the Local Government Board to sanction a loan for proposed new bridge to the pier approach. The bridge, which is to have a span of 60 ft. and a width of 20 ft., is to be of reinforced concrete on the "Piketty" system.

*The Baths of Bath.*

Messrs. John Belcher and J. J. Joass have been instructed by the Radium Development Syndicate to prepare designs for the proposed development scheme of the baths of Bath in accordance with the original proposals now under negotiation with the corporation. The elevations of the baths and hotel are, it is stated, to follow the style of architecture characteristic of the city.

*New Bridge for New College Street, Oxford.*

Hertford College, Oxford, has now obtained the consent of the City Council to the erection of a bridge between the old college buildings and the new. The designs which the City Council have passed were submitted by Sir Thomas Jackson, R.A., F.R.I.B.A. The bridge is to have a clear span of about 32 ft. 6 in. and a width of 10 ft. The arch—a segmental one, of

about 20 ft. radius—will have its outer ribs of stone, the internal portion being of three rings of brickwork covered with asphalt, but the faces of the superstructure will be wholly of stone.

*To Tunnel the Humber.*

The Mayor of Hull stated last week that an application would shortly be made to Parliament for powers to construct a tunnel beneath the Humber, and that one or two railway companies were preparing plans.

## COMPETITIONS.

*Devonport New Municipal Buildings.*

Devonport Town Council have decided to invite competitive plans for the erection of new municipal buildings to cost £95,000, exclusive of furnishing. The Mayor said the total cost would probably be £115,000.

*British School at Rome: Architectural Scholarship.*

Past and present holders of the Royal Academy Studentships and of the Soane Medallion, Tite Prize, Owen Jones Studentship, Ashpitel Prize, and Grissell Medal who intend to compete for the Scholarship in Architecture offered by the Commissioners for the Exhibition of 1851 must submit to the hon. general secretary, British School at Rome, 54, Victoria Street, S.W., on or before March 10th, their names and addresses, together with a certificate of birth. Competitors must be under thirty years of age on September 15th, 1913.

*Henry Farvis Travelling Studentship.*

An additional studentship of £200 per annum, tenable for two years at the British School at Rome, will be awarded by the Council of the Royal Institute of British Architects on the results of the above competition. It will be open to all Associates and Students of the R.I.B.A. under thirty years of age on September 15th, 1913. All who intend to compete, excepting those who are already entered for the Commissioners' Scholarship, must submit to the hon. general secretary of the British School at Rome, at the address given above, on or before March 10th, their names and addresses, together with a certificate of birth.

*Rural Housing, Swaffham.*

In this competition, 140 plans were submitted, and the committee made the following selections: 1, Mr. Arthur Pells, Beccles; 2, Mr. P. E. Culling, Norwich; 3, The Swaffham R.D.C. Surveyor.

*Children's Home, Barnet.*

The awards in this competition are announced as follows: 1 (25 guineas), Mr. F. E. Williams, F.R.I.B.A., London; 2 (15 guineas), Mr. A. E. Gill, Barnet; 3 (10 guineas), Mr. A. E. Watson, Barnet.

*Paris Cheap Dwellings Competition.*

The second competition of the series instituted by the Paris municipal authority, comprising projects for the Rue Henri-Becque and Brillat-Savarin site, has been decided as follows: 1 (10,000 fr.), MM. Gonnot and Albenque; 2 (6,000 fr.), MM. Jean Walter and Louis Bernard-Thierry; 3 (5,000 fr.), MM. Dubost and Gautruche; 4 (4,000 fr.), M. Payret-Dortail; 5 (3,000 fr.), MM. André Berry and Edouard Malot. Projects numbered 11 and 13, whose authors' names are not disclosed, have been purchased by the municipality.



## SOCIETIES AND INSTITUTIONS.

### MANCHESTER SOCIETY OF ARCHITECTS.

*Mr. J. A. Gotch, F.R.I.B.A., on the Palace at Whitehall.*

At a meeting of the Manchester Society of Architects on February 12th, Mr. J. Alfred Gotch read a paper on the original drawings for the palace at Whitehall, attributed to Inigo Jones, of which the following is a résumé:

The generally accepted idea in relation to the drawings for the great palace at Whitehall is that they were prepared by Inigo Jones for King James I., and that the well-known Banqueting House was the only part of the vast scheme that was actually carried out. This opinion had been deduced from Kent's publication of some of the drawings, not from any outside or corroborative evidence. The other scheme for the palace, published by Campbell in "Vitruvius Britannicus," which is much smaller in extent and of quite a different design, has always been a stumbling block. The original drawings utilised by Campbell are preserved at the British Museum; those used by Kent are at Worcester College, Oxford. But there are other drawings relating to the Kent version preserved at Chatsworth; indeed, these and those at Worcester College are parts of the same original collection, which was left to his son by John Webb, the pupil and executor of Inigo Jones and a connection of his by marriage. Until quite recently neither the Worcester College drawings nor those at Chatsworth had been systematically examined; and they had never been collated. But, by the aid of photography, they have now been examined side by side, with the result that unexpected and interesting conclusions have been arrived at which upset hitherto accepted ideas.

In the first place, it is clear from contemporary references that the Banqueting House merely replaced an older building which was burnt down early in the year 1619. The new one was started within a few months after the fire, and there was no time to have developed the huge scheme of which it is supposed to have been a portion. The first direction, therefore, in which the received opinion has to be modified is that instead of being part of a large preconceived palace, the Banqueting House was built as an isolated, self-contained structure, and that the larger schemes were designed round it.

The next important fact brought to light is that, instead of two, there were at least seven different schemes prepared for the palace, all of which were worked out by John Webb and not Inigo Jones. There is no actual evidence that he had any hand in the larger schemes, whereas there are at Chatsworth two designs for the Banqueting House itself drawn by him, one of which is practically similar to the building as erected.

Of the seven sets of designs, two are at Worcester College, one of which was published by Kent. The third is that published by Campbell. The four others are manifestly the work of Webb. Two out of these four are preliminary sketches leading up to the Kent set. Another is an alternative design, signed by Webb, submitted by him to Charles II. and noted by Webb as "taken"—i.e., accepted. The fourth is yet another scheme, comparable in size to the Campbell design. As two

out of the four which are manifestly by Webb lead up to the set at Worcester College which was published by Kent, this also may safely be ascribed to Webb; and with equal safety the second at Worcester College, which is a variant of the first, may be credited to him. There only remains the Campbell set, which bears so strong a family likeness to the others, that it must have sprung from the same source.

The chain of evidence which leads to these conclusions was fully set out in the extended paper, and reproductions of sufficient drawings to illustrate the links of the chain were shown upon the screen.

Curiously enough, the conclusions which the drawings themselves lead to are confirmed by Webb himself in a document hitherto unnoticed—at any rate, the vital part has escaped observation. When Webb applied, after the restoration of Charles II., for the post of surveyor of the King's works, he attached a brief of his case to the petition which he submitted. In the brief he says "that he was Mr. Jones's deputy (in the office of surveyor of the King's works), and in actual possession of the office upon his leaving London, and attended His Majesty (Charles I.) in that capacity at Hampton Court and in the Isle of Wight, where he received His Majesty's command to design a palace for Whitehall, which he did until His Majesty's unfortunate calamity caused him to desist."

It would appear, therefore, that the great palace was not designed by Inigo Jones for James I., and that the Banqueting House was not a small part of this scheme, but was an independent building designed by Jones to replace the old one destroyed by fire. The whole idea of the palace was more or less visionary, and was devised and developed by Webb during the last eighteen months of Charles I.'s life. Whether the work was pursued as a mere solace for the King's ennui, or whether Charles entertained up to the last the conviction that he would triumph and resume his former state and glory, we can only conjecture.

### EDINBURGH ARCHITECTURAL ASSOCIATION.

*Mr. D. T. Patterson on "Building Stone."*

At a meeting of the Associate section of the Edinburgh Architectural Association, held at the Association Rooms, 117, George Street, Edinburgh, last week, Mr. David T. Patterson delivered an address on "Building Stone." Mr. Patterson gave an historical review of stone as a building material, a classification and description of various rocks, and dealt also with the proper selection of stone, and the causes of failure. About fifty samples of stone from various parts of Scotland, England, Ireland, France, Italy, America, Germany, and Austria were exhibited and briefly described; and the lecturer expressed regret that while Edinburgh was at one time world-famous for the production of the most durable sandstone—the Craigleith stone, for example—they were not now quarrying local sandstone for the highest class of work, except at Barnton Quarry, the use of which, however, was mainly confined to monumental work. Mr. Patterson passed some severe strictures on the practice of invariably awarding contracts to the lowest bidders, especially during

periods of trade depression, for by this method many contractors, whose only reputation rested upon cheapness, indulged in desperate price-cutting. As a matter of fact, he said, an examination of their schedules often revealed the fact that such were often made up on a gambler's chance, and not based on reason. His advice was to select only the contractors who had a reputation for skill, reliability, and promptness; and in many cases if the price-cutting contractor was kept accurately to his schedule he would be crushed out.

### LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.

*Mr. W. S. Purchon on "Problems in Architecture."*

At a general meeting of the Leeds and Yorkshire Architectural Society, held on February 13th at the Leeds Institute, the President, Colonel A. E. Kirk, A.R.I.B.A., in the chair, Mr. W. S. Purchon, A.R.I.B.A., Architectural Lecturer at Sheffield University, gave a paper on "Problems in Architecture." The lecturer dealt with five constructional problems, some of them as old as the architect's craft, others of more recent date.

The first problem considered was the primary one of covering a space; and in showing how this problem was dealt with in the various styles, the gradual development of architecture was brought into prominence and attention was drawn to the interest which a study of architecture possesses when the constructional side of it is not neglected. Side by side with this great problem of covering a space, the equally important one of lighting the interior was being developed, and the lecturer drew attention to some of the salient features in that development.

Leaving these two great problems, the lecturer next dealt with a minor one, that of forming the junction between a tower and a spire, a problem which exercised the ingenuity of both mediæval and Renaissance architects. Some of the solutions were less satisfactory than others, and of the later examples Wren's steeple at the Church of St. Mary-le-Bow was stated to be undoubtedly the best.

The fourth problem considered was that of the use of the column in Renaissance churches. In some cases the methods adopted were not entirely satisfactory, the galleries cutting into the columns in awkward manner, and the columns supporting lintel forms which do not act as lintels. In other cases the problem had been seen clearly and properly solved, an example being Wren's Church of St. James, Piccadilly.

The last of the constructional problems dealt with was that of the modern shop front, a problem which sometimes resolves itself into a conflict between the architect and the shopkeeper, the former in extreme cases pressing for the use of bulky piers and the latter for nothing but a sheet of transparent material pierced with entrances. Shopkeepers are, however, realising in increasing numbers that beautiful goods show to better advantage in a beautiful frame than in an ugly one, and architects, for their part, are also realising that the reasonable claims of utility must not be sacrificed for the sake of theories of proportion devised for other purposes.

The lecturer then dealt with two educational problems, that of educating the



coming architect and that of educating the public. He drew attention to some of the advantages to be derived from the schools of architecture attached to most of the English universities, and to the dangers of dogmatic teaching and of specialisation at an early stage. "Architectural education should be of a kind that encourages the student to think, so that in after life he will be able to bring to bear on his work the logical mind which sees the nature of the problem, grasping the essential and rejecting the non-essential."

The problem of educating the public in architectural matters the lecturer thought a most important one. He hoped that each of our universities would not only award degrees to professional students of architecture, but would include the subject among those for the Intermediate and Final Examinations for the degree of B.A., so that architecture will once more become a part of a liberal education.

#### GLOUCESTERSHIRE ARCHITECTURAL ASSOCIATION.

##### *Election of Officers.*

At the annual meeting of the above association, held at the Northgate Mansions, Gloucester, the following officers were elected for 1913: President, Mr. T. Overbury; vice-presidents, Mr. Walter B. Wood and Mr. S. H. Healing; council, Mr. R. S. Phillips, Mr. H. A. Dancey, and Mr. A. H. Smithson; hon. corresponding secretary for Stroud, Mr. G. P. Milnes; hon. corresponding secretary for Cheltenham, Mr. H. W. Chatters; hon. general secretary and treasurer, Mr. H. Stratton Davis. An interesting programme was arranged for the coming session.

#### LONDON MASTER BUILDERS' ASSOCIATION.

A meeting of the Council of the London Master Builders' Association was held at Koh-i-Noor House, Kingsway, W.C., on February 20th, the chair being occupied by Mr. Walter Lawrence, jun., senior vice-president, in the absence of the president through illness.

Reports of the special committees were received and approved.

The duly audited accounts for the year ending December 31, 1912, were received and adopted.

Further questions in respect to the Board of Trade Courts of Referees were discussed and instructions given thereon.

Correspondence relating to trade matters was read.

The following firms were duly elected as ordinary members of the Association: Messrs. Todd and Newman, Stannard Road, Hackney, N.E.; Messrs. A. Roberts and Co., Ltd., 74, Earl's Court Road, S.W.

A complaint of a society against a member was deferred until the end of the meeting, when Mr. W. F. Wallis, junior vice-president, occupied the chair, and the matter was fully discussed and instructions were given thereon.

The forty-first annual general meeting of the Association was held at Koh-i-Noor House on February 27th, the chair being occupied by Mr. W. F. Wallis, J.P., junior vice-president, in the absence of the president and senior vice-president through illness.

The report of the council for the year February, 1912, to February, 1913, was received and adopted.

The duly audited accounts and balance sheet for the year ending December 31st, 1912, were received and adopted.

The following elections were made for

the current year, namely: President, Mr. Walter Lawrence, jun. (Messrs. Walter Lawrence and Son); senior vice-president, Mr. W. F. Wallis, J.P. (Messrs. G. E. Wallis and Sons, Ltd.); junior vice-president, Mr. Edmond J. Hill (Messrs. Higgs and Hill, Ltd.); treasurer, Mr. Wm. Downs-Walworth; hon. auditor, Mr. J. Wolfe King (Messrs. Harris and Wardrop); and ten members of the Executive Council to fill vacancies occurring in accordance with the rules of the Association.

#### THE A.A. ELECTIONS.

The result of the ballot for officers and council of the Architectural Association for the session 1913-14 was announced at the last meeting as follows: President, Mr. W. Curtis Green; vice-presidents, Messrs. H. A. Hall and Maurice E. Webb; hon. treasurer, Mr. Arthur Keen; hon. secretary, Mr. G. Leonard Elkington; hon. librarian, Mr. W. G. Newton; hon. editor of the A.A. Journal, Mr. J. Alan Slater; past president, Mr. Gerald C. Horsley; ordinary members of council, Messrs. A. Gilbert Scott, F. Winton Newman, F. C. Eden, P. Cart de Lafontaine, Geoffry Lucas, Stanley Hamp, F. Dare Clapham, A. G. R. Mackenzie, Alick Horsnell, and H. M. Fletcher.

The retiring members of council are Messrs. Arthur T. Bolton, Cecil Brewer, and Walter J. Tapper.

#### NEWS ITEMS.

##### *King's College Hospital.*

The new King's College Hospital at Denmark Hill, S.E. (Mr. William A. Pite, F.R.I.B.A., architect), is expected to be ready for the reception of patients towards the end of September next.

##### *Illness of Mr. James Brown.*

We regret to learn that Mr. James Brown, father of Mr. Ernest J. Brown, past-president of the National Federation of Building Trades Employers, is lying very seriously ill. Mr. Brown is seventy-eight years of age.

##### *Australian Federal Capital.*

It is proposed to erect in a suitable position on the Canberra site a column to commemorate the founding of the seat of government of the Commonwealth of Australia at Canberra. Arrangements have been considered for an appropriate ceremony on March 12th next, when the foundation stone will be laid.

##### *The Usher Hall Organ Case.*

The Usher Hall Committee of Edinburgh Town Council have agreed to recommend the acceptance of the estimate of Mr. John S. Gibson, architectural wood carver, for the carved work on the case of the organ for the new building. They also agreed to instruct the Town Clerk to inform the contractors for the hall that the whole work must be completed by July 3.

##### *Statuary at the London Law Courts.*

A white marble bust of Lord Collins, who died in 1911, has been placed in the north corridor at the Law Courts. Mr. F. Derwent Wood, the sculptor, has produced an excellent likeness of his subject wearing his full-bottomed wig and gown with ruffle. There are now five marble memorials of eminent judges in the Law Courts, the other four being those of Lord Russell of Killowen, Earl Cairns, Sir George Jessel, and Lord St. Helier. They

are all busts, with the exception of the statue of Lord Russell, which represents his lordship seated in full judicial regalia, and occupies a position in the Great Hall.

##### *The Institute of Builders and the Lumsden Case.*

In quoting, in an editorial note on page 216 of last week's issue, Sir Herbert Bartlett's reference to the Lumsden case at the annual dinner of the Institute of Builders, it was erroneously implied that Sir Henry presided on that occasion. The president of the Institute, Mr. H. A. Bartlett, occupied the chair.

##### *New Phthisis Buildings for Edinburgh.*

The Public Health Committee of Edinburgh Town Council had before them at a meeting last week the estimates lodged in connection with the provision of buildings at Colinton Mains Hospital for the treatment of phthisis patients under the Insurance Act. The committee resolved to recommend acceptance of the estimates, which amount to over £2,000.

##### *U.S. Portland Cement Production.*

Estimates based on returns received by the United States Geological Survey up to January 15th indicate that the total quantity of Portland cement manufactured in the United States in 1912 was approximately 81,941,998 barrels (of 380 lb.), as compared with 78,528,637 barrels in 1911, an increase of 3,413,361 barrels, or 4.3 per cent. This estimate, states the British Consul-General at Chicago, is believed to be within 1.5 per cent. of the exact figure.

##### *Westminster Hall Roof.*

The famous timber roof of Westminster Hall is to be examined, not in fear of any danger to it, but to ensure against any possibility of danger. Built for Richard II., and completed in the year 1399, it displaced the original Norman roof which, unlike its successor, was supported by pillars. It remains to-day practically as it was 500 years ago. A curious tradition about it is to the effect that, being made of "holy" Irish oak, it is shunned by spiders.

##### *Painters and Decorators Demand Higher Wages.*

To the general demand on the part of painters and decorators through their trade union for higher wages the employers are making reply, stating their readiness to consider favourably any demand that may be made from the men's side, but only on condition that the latter assent to a system of grading of workers as decorators and "brush hands," or ordinary painters, with corresponding variations in rates of pay. The men strongly object to any grading.

##### *The Portico of the Old Post Office.*

At the time of writing there is every probability that the fine Corinthian portico of the abandoned General Post Office, St. Martin's-le-Grand, will be demolished, and sold in sections. In July, 1911, it was offered to the London County Council. The Local Government Committee, however, were unable to recommend the acquisition, because they had no available site on which to re-erect it. The Treasury thereupon expressed their willingness to authorise expenditure to cover the removal of the portico to a place of safety, for a definite period, until a site was prepared. In reply to this, the Local Government Committee stated that they were unable to specify a date. The following institutions were also given the option to secure the façade: Victoria and Albert Museum, Royal Institute of British Architects, King



Edward Memorial Fund. With the exception of this portico, scarcely anything now remains of Sir Robert Smirke's building.

#### *Women Influence Planning.*

Nottingham Mechanics' Institution is to be extended at a cost of about £20,000, and while the subject was under debate, a lady member secured assent for her proposition that a reading-room or parlour, and better toilet accommodation, should be provided for the ladies.

#### *Town Planning Conference to be Held in Birmingham.*

The National Housing and Town Planning Council have organised a conference of representatives of local authorities in the Midlands to be held in Birmingham on Thursday and Friday in the present week, to consider the practical administration of the Town Planning Clauses of the Housing and Town Planning Act, 1909. The president of the gathering will be Councillor Harold Shawcross, of Rochdale.

#### *Norwegian Knighthood for Mr. Carøe.*

The King of Norway has named Mr. W. D. Carøe, M.A., F.S.A., F.R.I.B.A., a Knight of the First Class of the Royal Order of St. Olaf, for his work in connection with Trondhjem Cathedral. Mr. Carøe was invited last year to inspect and advise on the condition of the cathedral.

The King has granted to Mr. W. D. Carøe and Mr. Wilhelm Martin Johnsen his authority to accept and wear the Insignia of Knight of the First Class of the Order of St. Olaf, conferred upon them by the King of Norway.

#### *Widnes and Runcorn Transporter Bridge.*

Extensive alterations are to be undertaken in connection with the Runcorn and Widnes transporter bridge. The bridge, which was opened in 1905, cost £170,000, and connects the towns of Widnes and Runcorn, and the counties of Lancashire and Cheshire. The Widnes Corporation, to whom the bridge belongs, has consulted Mr. Basil Mott, and on his recommendation the Corporation proposes to spend about £10,000 on alterations. The travelling car, which weighs 80 tons, is to be reduced by 30 tons, and is to be dragged to and fro by a steel rope revolving on a huge drum, instead of being driven by electricity. By this method it is hoped to double the service of cars.

#### *The Gatehouse Tower at Esher Place.*

The old gatehouse tower at Esher Place, which is a building of much historic interest, has just been restored by Sir Edgar and Lady Helen Vincent, and during the work some features of special value from an antiquarian point of view have been revealed. As far as possible the tower has been restored to its original form, but it was badly hacked about by Kent in the early part of the eighteenth century when he made the tower part of an enlarged dwelling-house for Mr. Henry Pelham, brother of the first Duke of Newcastle. Kent's plaster work was excellent, and examples of it have been carefully preserved. In the keystone of the vault of the porch, under some rather rotten plaster, were found the arms of Bishop Waynflete encircled with the motto of the Garter, of which Order he was Prelate. The tower dates from about 1470-80. Bishop Waynflete, also, by his numerous buildings did much to popularise the use of brick, the art of making which had almost died out in England previous to his time. We have only to look at the face of England

now to see how it was one of the greatest benefits that could be conferred on the country that at a time of bad houses and unsanitary conditions people should be shown that good houses could be built from a material so easily procurable.

#### *Royal Photographic Society's House Exhibition.*

A house exhibition of photographs by members of societies affiliated with the Royal Photographic Society is now open at 35, Russell Square, W.C., and comprises landscapes, architecture, figure studies, and portraits. By way of enhancing the educational value of the exhibition, an artist has taken a number of the pictures and made sketches in monochrome to show how a painter would deal with the same subjects, always bearing in mind the limitations imposed by the use of the camera and lens. The exhibition will remain open to the public, free, on presentation of a visiting card, daily from 11 a.m. till 5 p.m. till March 20th.

#### *Holyrood Memorial.*

Lord Provost Inches, Sir William S. Brown, and the Town Clerk of Edinburgh, Sir Thomas Hunter, visited Buckingham Palace last week and discussed with the King the plans for the King Edward Holyrood Memorial scheme. Queen Mary was present at the interview. The plans of the successful design, which it may be recalled takes the form of two semicircular colonnades, with a statue of King Edward in the centre of the south colonnade, were discussed in detail, King George suggesting certain minor modifications of the design for the consideration of the architect, who will in due course produce an alternative plan. Their Majesties will then be in a position to compare both plans and make a final choice. Substantially the colonnade idea will remain, whatever modifications may be made on the design. In the course of the day Sir Thomas Hunter was able to convey the King's suggestions to Mr. C. Washington Browne, R.A., the architect.

### ARCHITECTS' RESPONSIBILITIES.

At Sheffield on February 7th Mr. Muir Mackenzie, K.C., sitting as Official Referee, gave his decision in a case which had been remitted from Leeds Assizes. Mr. Benjamin Thorpe sought to recover from Messrs. Robinson and Roberts, architects, of Sheffield, £166 18s. 7d. as damages suffered by reason of their alleged negligence and breach of duty. Plaintiff had engaged defendants to prepare plans and specifications for eleven cottages, for which the tender of a builder at £1,299 was afterwards reduced, by arrangement, to £1,150, the builder agreeing to accept the lower sum on condition that he should be allowed to use old stone and material, but he would not expect to work to specification. It was alleged that defendants had issued a final certificate, although the work was not satisfactory, the tenants having complained of rain coming through, and another firm of architects, called in to inspect the premises, reported that the specifications had not been adhered to.—For the defence it was contended that there was no evidence of neglect of supervision, and that any variations were in accordance with verbal agreement.—The Official Referee said he could not find that during the progress of the work there was any neglect by the defendants of their duty as architects. Accordingly he directed judgment to be entered for defendants, with costs of the action.

## OBITUARY.

#### *Mr. H. A. Tristram.*

We regret to record the death, which took place on February 22nd, of Mr. Henry Adolphus Tristram, proprietor of the Andrews-Hawksley Patent Tread and Engineering Company. Mr. Tristram, who was only in his forty-fourth year, had undergone an operation for appendicitis, and died from ensuing complications. He was highly esteemed, not only in his business relations and in private life, but also as a strenuous worker in the public interest. He was a member of Ealing Borough Council and of its Education Committee, an overseer of the poor, had acted as joint hon. secretary of the local branch of the Young Men's Christian Association, and was a member of the Haven Lodge of Freemasons. A very large number of persons attended the funeral, which took place at Westminster Cemetery, Hanwell.

## COMING EVENTS.

#### Wednesday, March 5.

Northern Architectural Association.—Exhibition of R.I.B.A. Prize Drawings, at 7.30 p.m.

Royal Sanitary Institute.—Lecture by Mr. Alan E. Munby, M.A., F.R.I.B.A., on "Elementary Science (Physics, Chemistry)" at 7 p.m.

#### Thursday, March 6.

Leeds and Yorkshire Architectural Society.—Mr. Wm. Black on "Standards in Reinforced Concrete Design."

Architectural Association (Camera, Sketch, and Debate Club).—Mr. Paul Fildes and Mr. Alan Potter on "Architecture in Photography," at 8 p.m.

#### Friday, March 7.

Royal Sanitary Institute.—Lecture by Mr. Alan E. Munby, M.A., F.R.I.B.A., on "Building Materials," at 7 p.m.

Birmingham Architectural Association.—Mr. William Haywood, F.R.I.B.A., on "The B.A.A. Excursion to Malines, 1912."

#### Saturday, March 8.

Architectural Association.—Fifth Spring Visit to King's College Hospital, Denmark Hill (Mr. William A. Pite, F.R.I.B.A., architect), at 3 p.m.

#### Monday, March 10.

Bristol Society of Architects.—Mr. Malcolm T. Evans on "The Engineering Equipment of Modern Buildings of Moderate Size," at 6 p.m.

Royal Sanitary Institute.—Lecture by Mr. Alan E. Munby, M.A., F.R.I.B.A., on "Building Sites—Construction and Sanitary Planning," at 7 p.m.

#### Wednesday, March 12.

Northern Architectural Association.—Annual Meeting and Exhibition of Students' work, at 7.30 p.m.

Edinburgh Architectural Association.—Lecture by the Rev. Professor James Cooper (subject not announced), at 8 p.m.

Royal Sanitary Institute.—Lecture by Mr. Alan E. Munby, M.A., F.R.I.B.A., on "Ventilation, Warming, and Lighting," at 7 p.m.

Manchester Society of Architects.—Lecture by Mr. Leslie Wilkinson (subject not announced).

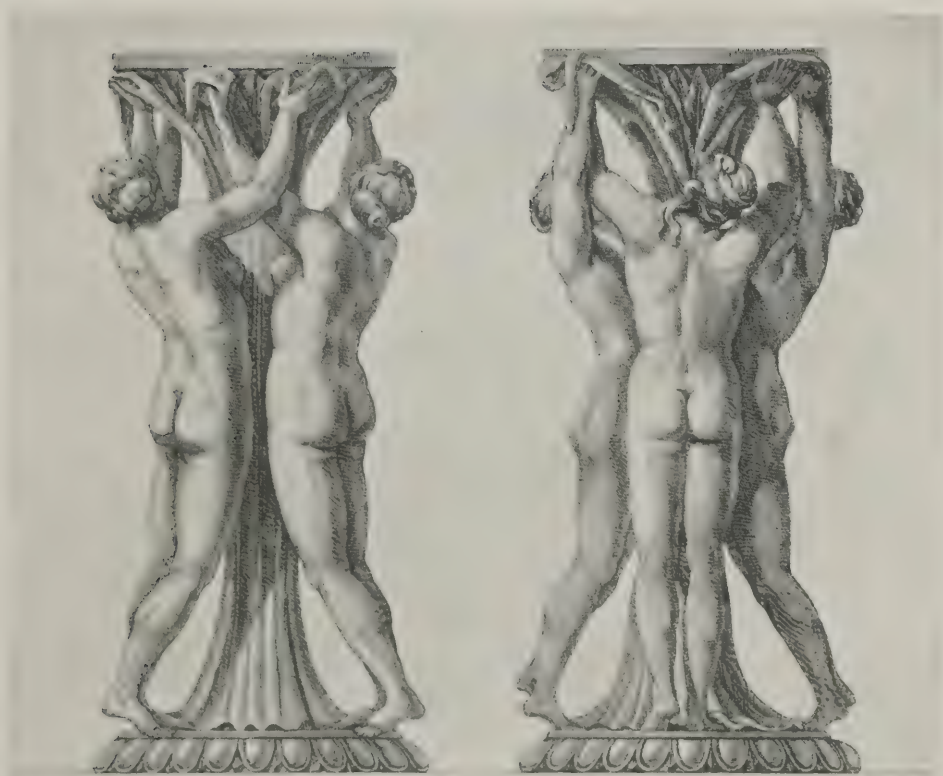


THE  
ARCHITECTS' & BUILDERS'  
JOURNAL.

Wednesday, March 12, 1913.

Volume XXXVII. No. 948.

No. 24.



*Gruppo di tre Donne, che si vede nel Palazzo della Villa  
Borghese fuori di Porta Pinciana*

(From Piranesi.)



*Photo: Bedford Lemere & Co.*

NEW BUILDING FOR THE BRITISH BANK OF SOUTH AMERICA, MOORGATE STREET, LONDON, E.C.

DUNN AND WATSON, F.F.R.I.B.A., ARCHITECTS.

*(See page 269.)*



# THE ARCHITECTS' & BUILDERS' JOURNAL.

MARCH 12, 1913.

CAXTON HOUSE, WESTMINSTER.

VOLUME 37. No. 948.

## "The Builder's Jewel."

THE need for a text-book on building construction from which the building student might copy the details of simple work to be carried out without the aid of an architect has already been emphasised in these pages. In the eighteenth century such a book existed under the title of "The Builder's Jewel," compiled by Batty Langley and his brother Thomas as a "Workman's Remembrancer" and "Youth's Instructor." To judge by the number of editions it ran through from 1741, when it was first published, to 1805, when a final edition appeared at the price of five shillings, it must have been widely used and have exercised an incalculable influence.

It was the express intention of the author that the book should be a fit size for the pocket, so that "the sage workman may carry it about with him and re-inform himself of those Rules that have slipped his Memory and inform him of others that he never knew," and that apprentices who are so unfortunate as to be bound to a "Jobbing Master, who knows but little, may, without the help of any, by assiduous application at their leisure hours . . . make themselves such masters therein, that few masters are able or willing to make them." Like Langley's architectural school, it was in no sense intended for architects, and contained no fundamental principles; it was no precursor of "Guadet," but a simple compilation of ordinary architectural features and details with their diagrammatic division into parts. In fact, it is the very thing for a craftsman to copy from without the exercise of the faculty of design.

There are 100 plates in all; the first sixty-two deal with the five orders, each treated thoroughly, including doors, windows, intercolumniation, porticoes, arcades; and so exactly is every group of mouldings divided up into parts, that the promise of the title-page that the method of working is "made familiar to the meanest capacity" is amply fulfilled. The short rules at the beginning are little more than the verbal counterparts of the diagrammatic plates, but they constitute a sort of cross-reference, as the separate features of the five orders are here grouped together. Thus, one chapter treats of pedestals and their parts, another of columns and their parts, another of entablatures, etc.

After the orders follows the treatment of pediments; and here Mr. Langley becomes somewhat dogmatic, and will not allow "open pediments" to be employed outside, because they do not carry out the true function of an "entire pediment," to carry off and discharge the rain at its extremes. Though Inigo Jones himself did it at Shaftesbury House, nothing can be more absurd, he says, than an open pediment abroad, "unless it is the placing of an entire pediment within a building where no rain can fall, as done by Mr. Gibbs within the Church of St. Mary-le-Strand." The details of the pediments contain very useful instructions as to how to draw by ordinates the profile of the raking mouldings. The next six plates contain the most questionable stuff in the book, a series of designs for ornate pedimented window-heads, conceived in a somewhat trite Baroque taste.

Then follows a useful plate of quoins and "block cornices" for plain brick buildings, another showing how to proportion ceiling cornices to the height of rooms, and three plates dealing with coves, plain and groined. The last eighteen plates are mere carpenters' work, and inconclusive, and, in the case of several of the trusses, highly unscientific at that. These latter plates seem quite out of keeping with the rest of the work, which does not set out to teach the fundamentals of building construction, but rather its architectural treatment. The last plate, showing the outer timber-framed dome of St. Paul's, is evidently introduced by way of a full close.

To us nowadays, looking at this little book, the extraordinary thing is that there are no rules given for the general proportions of elevations or interiors. Intercolumniations are dealt with, but not the spacing of windows in astylar compositions; doorways are detailed, but nothing to show their proper relation to a façade. One wonders how such a book, even in the hands of a "sage workman" or of an assiduous apprentice bound to a Jobbing Master, could produce anything but a collection of disjointed units fortuitously assembled together. But we know that the work which was inspired by this and other such handbooks is as good in its general proportions inside and out as it is in detail, and we can only explain it by the fact that Langley was writing for a generation steeped in an instinctive tradition for general proportion, and content to attempt few departures from simple themes which were worked out with endless minute variation. That this instinctive feeling for proportion was largely a traditional and an unconscious affair is further proved by the fact that it was the last quality to die. Houses in which all the simple scholarly details of Langley are thrown over for coarse Italian travesties, or Strawberry Hill Gothic burlesques, still retain some sense of proportion and groupings. We all know examples of such houses, with Gothic label-moulds over their windows or a superfluity of ridiculously heavy cornices stuck like afterthoughts on to well-balanced fronts, and bald, bare mantelpieces and villainously modelled ceiling roses in rooms of admirable shape.

It may be suggested, however, that the use of such a manual, with its starched preciseness, would produce nothing better than a monotonous level of tedious accuracy; but it cannot be too often insisted that a certain amount of architecture, alone of the arts, must of necessity be turned out, inspiration or no, and it is a great thing if the humdrum stuff reaches a level of good form (an execrable achievement in poetry, painting, and music). "The Builder's Jewel" was for the guidance of the humdrum constructor, not the inspired architect; to its influence and that of its fellows is directly due the chief character, solid, comfortable, and artistically satisfying, of our old towns and villages; for the mediæval and gabled work is small in bulk, except in one or two special districts, compared with the quiet sash-windowed style, which lasted for two hundred years. It was probably a matter of economy which prevented the issuing of newly engraved plates, making the later editions appear dis-



tinctly behind the standard of later eighteenth-century work. The potent influence of Adam, which was already penetrating into remote country districts, is nowhere apparent—it is the safe but indelicate detail of Gibbs that is illustrated.

Batty Langley's notorious invention of the Five Orders of Gothic architecture proves that the soberness of taste of "The Builder's Jewel" was not always his, but, fortunately, he made no attempt to debauch the workmen and apprentices whose guide he set out to be; the nearest approach to equivocal taste is to be found in the passage where he suggests that "as some delight in variety" he has thought it advisable to give examples of Corinthian capitals with olive, laurel, and parsley foliage in lieu of acanthus; but one is reassured by the plate representing these alternatives, for they merely resolve themselves into faint varieties of acanthus.

Batty Langley was himself a builder, surveyor, timber expert, pumping engineer, and teacher of architecture. His brother Thomas helped him in his teaching, but was by trade an engraver. Between them, by their teaching and writings, and particularly by "The Builder's Jewel," they exercised a sane and wholesome influence over the uninspired but necessary work of the small builder.

P. A.

#### The Building Trade Revival.

AT last the building industry has arrived at the turning in that very long lane which seemed destined to falsify the proverb. Once again the builder treads with eager steps the firm pathway of comparative prosperity. We heartily congratulate all concerned, not only on the revival of business, but on the magnificent behaviour of the industry as a whole during a period of depression that is surely of unexampled severity and duration. With how much difficulty even some of the wealthy firms have staved off dissolution is known only to themselves, for they have shown how to suffer and be strong: unless a tendency towards the desperate cutting of prices may be accounted a weakness. Many a captain of the industry could, if he were not just now too busy for poetics, with W. E. Henley's hero, "In the fell clutch of circumstance I have not winced nor cried aloud"; and now the reward of such staunchness may not be much longer delayed. The protracted period of depression had, of course, its ugly effects: not the least regrettable of these being that, in the endeavour to find work for their men, to keep the machinery from rusting, and to prevent the establishment from shrinking visibly under the public eye, some firms have accepted work at cost price, or even at a loss. Undercutting of this sort now ceases automatically, and the builder again realises—with exceptional reservations—that "in all labour there is profit." But the profit is not likely to be the 10 per cent. of former opulent times. Rather less than half that is as much as can be hoped for until the builders can agree to transfer to the client some portion at least of the heavy burdens which changed conditions—harassing legislation, and the greatly increased cost of labour and commodities—have imposed upon their long-suffering industry.

#### The Kingsway Island Site.

KINGSWAY is to become "the Hub of the Empire"—always supposing that the latest scheme for building on the fine crescent site which faces Kingsway on the north and the church of St. Mary-le-Strand on the south is attended with better luck than that of its predecessors. The aspiration of the "Hub" is that of Earl Grey, who has obtained from the London County Council a three-years' option at £3,000 a year. The interests of the Dominions, it appears, are to be collected on one central site, and "in a nutshell, the scheme is to provide a better oppor-

tunity than any now existing to enable the Dominion grower to bring his produce before the notice of the home and Continental consumer." Canada and Newfoundland, Australia, New Zealand, and South Africa are to be asked to take up the London County Council's offer of a ninety-nine years' lease at £50,000 a year, which is £5,000 a year less than the offer to M. Ernest Gérard, whose project for a "Paris-in-London" building on the "Island Site" has not materialised. That the site is, of its kind, "the finest in the world" we should be very unwilling to admit; but nevertheless it is too fine a site to be sacrificed to the shortsighted sordidness of the everlasting ratepayer. That, however, may be its fate; and the only hope that remains to us is that the commercial spirit which dominates the situation may be to some degree mitigated by the idea of empire on which Earl Grey has been careful to insist, and of which the architect is not likely to lose sight. Our own view is that London is throwing away a magnificent opportunity of magnifying the Imperial idea in another way by erecting on this site a building which should give dignified expression to a noble purpose. London's County Hall might have served this turn if the councillors had been imbued with a larger, a less parochial conception of their functions and responsibilities, and a more vivid realisation of the relation of the capital to the Empire. Still more remote from sordid commercialism, and unhaunted by the *Poltergeist* of the menacing ratepayer, would have been the erection of London's University on the Island Site; and this consummation is not impossible even yet, although the hope for it is infinitesimally faint. But failing the London University suggestion, we clutch rather desperately at Earl Grey's commercially sophisticated Imperial Idea, lest a worse thing should happen; for it would be doubly disastrous if, after all these years of waiting we should have to put up with the sort of thing that has already given miles of mean streets to London.

## "THE ARCHITECTURAL REVIEW."

### ANOTHER FINE ISSUE.

THE March issue of "The Architectural Review," just published, is an even finer issue than either of the two preceding numbers of the new series. As frontispiece, there is a clever drawing of Lower Regent Street, by Mr. Francis Dod. The articles include a most interesting one by Mr. Phené Spiers on "Archæological Research in the Paintings of Sir Lawrence Alma-Tadema," illustrated by details from "Caracalla and Geta," by reproductions of the "Coriolanus" drawings, and of a little-known but delightful picture called "A Roman Studio." Mr. W. G. Newton contributes the third and concluding article on "Some Oxford Details" (the illustrations for which have been remarkable), and Mr. Godfrey concludes his study of "Some Famous Buildings of Portugal." Sir James Thornhill's house in Soho—a fine example of 18th-century architecture, embellished with paintings by Thornhill and Hogarth—is dealt with in an article by Mr. J. M. W. Halley, and garden design is represented by some beautiful photographs of the garden at Bridge House, Weybridge. To the discussion on "Sanatoria for the Community" Mr. Leipoldt contributes a valuable article on "The Tuberculous Child," while "The Practical Exemplar" shows the rood screen from the Church of St. John, Bois-le-Duc, North Brabant, now in the Victoria and Albert Museum, South Kensington. The plates in this issue are a particularly fine series. There is certainly no other publication, either in this country or abroad, that is equal to the "Review" in its new form.



## THE SHOP FRONT OF YESTERDAY.

WHEN Leigh Hunt wrote that delightful essay "Of the Sight of Shops" he imaged the importance of shopping as an aid to social intercourse, but, beyond an adumbrative hint or so, he left the architectural aspect of his subject to the imagination. Yet it is the design of the shop front which indicates its class, irrespective of the stock arranged to attract the buyer.

In the closing years of the last century, when Regent Street was much as Nash left it, when the steeple of St. James's Church could be seen towering above the Quadrant, and the silhouette of Cockerell's chapel, projecting over the public way, checked the dazzling series of shops, it was a real pleasure to shop in the first thoroughfare of the Capital. Bond Street also had its attractions in those days: modern improvements were few, and the honest showcases of an easier-going period were deemed all-sufficient. Oxford Street had yet to become the drapery centre; it still retained the character of the erstwhile Oxford Road. Then, too, the immediate suburbs had not entered upon their period of decadence; the High Streets of Islington, of the Borough, of Stoke Newington, and the trading centres adjacent thereto, were in the heyday of their prosperity. But all this has been changed by the never-ceasing growth of the metropolis and the vogue of plate-glass areas. A score of questions are here involved, including those related to the big store. The writer's present intention, however, is not to deal with any of them, but rather to concern himself with the smaller shop front.

Every city, town, or suburb in the kingdom has its special street of principal shops, many of them old-established concerns the names of whose owners can be found in the forgotten directories of a century ago. Grafton Street, Dublin, boasts several, Sackville Street (now O'Connell Street) many others: but, of all the shops in the Irish capital, a book store in Grafton Street commends itself to our notice as the most perfect. The writer has wandered through the streets of Edinburgh conjuring up the ghosts of a vanished past, discovering shop fronts of eighteenth-century magnificence, relics of a time when embryonic Bailies lived above their business, and yet were not above it. Glasgow, too, has been investigated. Here we have been exhilarated by Alexander Thomson's work in Sauchiehall Street, and moved to regrets at the demolition of minor creations inspired by the example of the Adam brothers. In short, the study of shop-front architecture has become an obsession. During these repeated wanderings, the endless variety of shop-front designs appeared remarkable until the writer compared notes with the best London examples; then the crystal became clearer, for the shop fronts of the metropolis have at all periods furnished the models for those erected further afield.

Those who know their Tallis thoroughly have an index to a great period of shop-front design. Who Tallis was it is impossible to say; it is safe to name him as an artistic Kelly, who, equipped with a staff of enthusiastic myrmidons, embarked on the seemingly endless task of illustrating both sides of the principal shopping streets which enriched London during the 'forties.

Not only did these assistants survey with architectural eyes, but they recorded the countenance of the streets with microscopic exactitude. The complete delineation of Regent Street formed the main objective of their attack; then followed High Holborn, Fleet Street, Red Lion Street, Oxford Street, and other thoroughfares of note. But the task proved too great, and Tallis flourished in one edition only.

It is hard to say why there is such a lack of taste

among the trading classes regarding the design and character of their premises, when formerly good taste was the order of the day. Does the shopkeeper really reap a greater harvest by displaying his goods behind the insecurity of a sea of glass? Possibly the architect is at fault in giving way too easily to the demands of his tradesman client; or perhaps he does not take the trouble to educate the latter to a right sense of the fitness and proportion of things. Yet in our midst we have many excellent models. Pennethorne's masterly treatment of the shop fronts in the Quadrant must first be mentioned; the continuous projecting balcony unifies the series of diverse shop fronts below, and æsthetically distributes the superincumbent weight over a large area, the voids appearing reasonable in scale. Another design by this architect, little known, is Glave's in New Oxford Street—a perfect drapery shop, satisfactory alike to the artist and to the shopkeeper; and many other lessons might be gleaned from the adjoining and opposite premises. Formerly there was an exceptionally fine composition in High Holborn, with large shop fronts below. Gone, alas!

The writer has a fond leaning towards the smaller shop front; indeed, he is devoutly thankful that, in point of numbers and excellence of design, so many are still extant. They are the dying aristocrats of a time-honoured cause. St. James's Street boasts several, Pall Mall a few, and Bond Street protests at the yearly inroad on her stalwarts.

It is interesting to note the shop-keeping proclivities of the British nation as set forth in the physiognomy of old shops. At one time the craftsman endeavoured to impart to the design of the shop front some symbol of the trade carried on behind the sashed screen. The butcher's shop carried a ram's head or ox skull on either of the flanking trusses, a baker's shop flaunted a wheatsheaf, an undertaker's an inverted torch, a barber's the projecting pole—all survivals of the seventeenth and eighteenth-century signs. The writer calls to mind a pawnbroker's shop in Liverpool above which sails the sign of Lombardy, hung from a wrought-iron obelisk of eighteenth-century date; and it would be easy to cite many another old sign.

About the year 1840 the old order changed, yielding to an epidemic of dangerous growth. The reeded pilasters carrying flat cornices, and framing a dozen squares of glass, were deemed old-fashioned except by the level-headed among the shopkeepers, who mercifully saved the faces of their premises. What treasures disappeared at this critical juncture it is difficult now to say, but reference to Tallis gives an indication of what has been lost. Gone are the fanlights of Adam design, gone the trellis-headed sashes of Sheraton's time; mahogany fronts and acres of glass hold sway in their stead.

It cannot be expected that modern conditions of shop life should be expressed in the same terms as those which appertained during the reign of the Fourth of the Georges. But the lessons offered by the designs of that not so distant period should be seriously considered. Shop fronts, in reality, are show-cases to be applied against a background; not, as some authorities consider, to be regarded as glass windows of abnormal size cut out of a basement storey and carrying on the knife-edge of the sheet of plate a veritable avalanche of bricks and mortar.

In the whole series of shop fronts the human interest of the bow-fronted sashed-bar window still makes a direct appeal to those bent on shopping, and though the great American store is a fine place where one may do a month's ordinary shopping in the short space of an hour to two, the writer has more friendliness towards the smaller establishment like De Quincey's "little hosier's shop" in the Ratcliff Highway.



## THE ARCHITECT AS ARBITRATOR.

THE vexed question of the position of the architect or the engineer as arbitrator on matters arising from a contract in which he is himself professionally or officially engaged has been often discussed in these columns, and the conclusion of the whole matter seems to be that while there is certainly a good deal to be said on both sides, and while it would be highly inconvenient if the architect or engineer were to abrogate entirely the functions of arbitrator, yet there are occasions when an independent arbitrator is indispensable to an equitable adjustment. To say this, however, is merely to state the problem, not to solve it. There is no doubt of the convenience of regarding the architect as an arbitrator between the building owner and the builder; but this position is more or less of the nature of a legal fiction. The designer of the work should know better than the builder how it ought to be carried out, and he is under an obligation to the building owner to ensure that it shall be executed in the best way. He is responsible to the building owner who employs him, and is, therefore, in a sense, adversative to the builder. The plea, then, which has been very adroitly put forward, that the architect or engineer is already and essentially invested with the authority of an arbitrator, and should in no circumstances short of fraud be divested of that character, may be logical, but is contrary to common sense, as most formal conclusions are. It is based on a conventional assumption. In particular, it tacitly assumes that the architect unites the virtues of Solon, the Chevalier Bayard, and Cæsar's wife; whereas he is usually quite human, and he ought not to be set the hard task of judging his own cause.

The problem seems to be how to retain the architect's right of veto in general without investing him with quasi-judicial functions, and the solution is beset with difficulties. It is easy to say, "For all works involving more than a certain specified sum, let the terms of the contract provide for an independent arbitrator in case of dispute." If contractors had any moral backbone, they would insist on some such safeguard to their interests; but the plain fact is that the stress of competition forces them to accept almost any conditions that a building owner—more particularly a corporation—chooses to impose upon them; the corporations, on their part, endeavouring to excel each other in a scrupulous disregard of the contractor's interests, and in an overweening assertion of their own. It is peculiarly a vice of officialism. In arranging the conditions, the official obviously has at stake not only his professional reputation, but his official position, and this would, at least partly, account for his greater stringency as compared with the private practitioner casually engaged.

The Courts, as Mr. E. J. Rimmer, in his useful little book on "The Arbitration Clause in Engineering and Building Contracts" (London: Constable and Company, Ltd.; 2s. net) duly records, have, in their more recent decisions, recognised these phenomena. Some few of the judicial utterances cited are quite piquant. This is from a judgment by Lord Justice Bowen: "It was an essential feature in the contract between the plaintiff and the railway company that a dispute such as that which has arisen between the plaintiff and the company's engineer should be finally decided not by a stranger or a wholly unbiased person, but by the company's engineer himself. Technically, the controversy is one between the plaintiff and the railway company; but virtually the engineer must be the judge, so to speak, in his own quarrel. Employers find it necessary to their own interests, it seems, to impose such terms on the contractors whose tenders they accept, and the contractors are willing, in order that their tenders should be accepted, to be

bound by such terms." Then, as it seems to us, his lordship proceeds to weaken the cause of justice. "It is no part of our duty," he conceives, "to approach such curiously coloured contracts with a desire to upset them or emancipate the contractors from the burden of a stipulation which, however onerous, it was worth his while to agree to bear. To do so would be to dictate to the commercial world the conditions under which it should carry on its business." In other words, if the contractor is weak enough to agree to such conditions, he must take the consequences. Lord Justice Davey has a passage to similar effect: "No doubt in a sense the engineer will be the judge of his own conduct, and no doubt that is a position which *prima facie* raises some surprise in a judicial mind; but that is the contract of the parties. They have contracted that the servant of one of the parties to the contract shall be the arbitrator, and it appears to me that they have contracted that he shall be the arbitrator in cases which necessarily involve the correctness of his own opinion, the competency of his own advice and opinion as engineer, and the regularity of his own proceedings." There, again, we get the same somewhat cynical view: "Having made your bed, you must lie on it," and this homely phrase describes, roughly, the attitude of several judges.

In later cases, the judicial mind has revolted against judicial functions being usurped by a layman. Thus the Master of the Rolls has said: "I am not satisfied that there is not sufficient reason why the matter should not be referred." Here there seems to be a negative too many, but the context shows the meaning to be the reverse of that expressed: for he proceeds: "I have difficulty in seeing how the matter can be properly dealt with without the cross-examination of the engineer, and it is obviously impossible to allow the arbitrator to be cross-examined by one of the parties to the arbitration." This view has been criticised by Lord Justice Farwell, who thought it "impossible to say that arbitration should be negatived whenever it is suggested that the cross-examination of the engineer is desirable. There are scores of points in the execution of a large contract which depend upon the engineer's own evidence, and as a general rule these would be left to him notwithstanding any suggestion of cross-examination. It all depends upon the nature of the questions, and the inference which the court is entitled to draw therefrom, as to the intention of the parties to include or exclude such a matter in the reference."

The moral of this and of several other recent judgments is that contractors are not justified in assuming total immunity from arbitration by the architect or the engineer, notwithstanding the provisions of the contract. The "contractual referee," as they somewhat contemptuously term him, may have been scotched, but is not killed; but he will not be allowed to sit in the seat of judgment if it can be shown that he has prejudiced the issue by unreasonable or unjust conduct, or if the Bench decides that the matters in dispute are for any reason such as should be more properly determined in a court of law.

The position, therefore, of the architect or engineer has become precarious. Much has been heard of his faults, but much less of faults on the other side. Yet, as everybody knows, it is open to either party to thwart and annoy the other past all endurance, and when such systematic annoyance has occurred on either side, or on both sides, reference to the law courts of any serious matters in dispute is the only rational course. As a mere matter of personal convenience, therefore, the average engineer or architect would no doubt be glad to divest himself of his quasi-judicial



authority, if in doing so he did not also deprive himself of the authority and control which it is necessary that he should exercise in the conduct of the work. He feels, therefore, that it is preferable to incur the risk of being drawn into the courts in order to have it determined whether he shall be the arbiter in a dispute or practically the defendant in an action at law, rather than virtually to abrogate his functions as the controlling force over the work in progress. His position in the matter is no more enviable than that of the contractor, who, in endeavouring to assert his right of action, usually shows no very tender regard for the character or reputation of architect or engineer.

Nor is the provision (in the contract) of an independent arbitrator either so simple or so effectual a remedy as is sometimes lightly assumed. If he is named, he is the nominee of one party to the contract; where the nomination is more vague, there arises the not inconsiderable difficulty of securing an arbitrator to whose appointment both parties will agree. Further, the reference to an independent arbitrator may entail cumbersome and formal proceedings—the extensive examination of witnesses and sifting of details by the independent arbitrator in the effort to inform himself on particulars upon which the architect or engineer on the job would waste no time, having them all at his fingers' ends, visits to the works, examination of the materials, and other costly and dilatory paraphernalia of an amateur or extra-judicial court, in which the real thing is apt to be more or less extravagantly exaggerated or burlesqued. An arbitrator appointed by the Board of Trade or by some professional body might be more businesslike, but would be hardly more economical.

## THE SMALL SUBURBAN HOUSE COMPETITION.

A GOODLY number of drawings for the above have now been sent in, but, remembering what is the customary experience with competitions, we expect to receive the bulk of the designs just before the last day for submitting designs—March 19th. Full particulars of the competition (in connection with which premiums of 5, 3, and 2 guineas are offered) were given in our issue for February 19th, and replies to enquiries in subsequent issues. Two or three readers having written to ask whether more than one design may be submitted, we would say that each competitor can send in as many designs as he chooses.

## A NEW LONDON BANK.

THE building in Moorgate Street shown by the illustrations in this issue has recently been completed for the British Bank of South America from designs by Messrs. Dunn and Watson, F.F.R.I.B.A., of London, W.C. The ground floor, basement and sub-basement are occupied by the bank, the upper floors being let as offices. The ground floor and basement walls are faced with marble, except in the private rooms, where mahogany panelling has been employed. Fire-resisting construction is used for floors, etc. The façade is of Portland stone. Messrs. George Trollope and Sons and Colls and Sons, Ltd., were the builders.



Photo: Bedford Lemere & Co

NEW BUILDING FOR THE BRITISH BANK OF SOUTH AMERICA, LONDON: THE BANKING HALL.

DUNN AND WATSON, F.F.R.I.B.A., ARCHITECTS.



## HERE AND THERE.

THE Patent Office Library, off the top of Chancery Lane, is an extremely useful place, no doubt—more particularly because, being on the open access system, you can wander at will in and out of its “closes” of books and take down any you choose to look at; but it is also an extremely depressing place—first, because the air is of that dead uniformly warm character which reduces members of the House of Commons to limpness, and, secondly, because the recoras of patents which there confront you in their thousands render Solomon’s aphorism so appallingly true that you wonder where inventors continue to get their optimism. Anyone who has had experience of the Patent Office Library will know how difficult it is to think of anything which has not already been evolved, if not exploited; and, out of pity for those who are suffering from the disease of invention, I would strongly recommend a study of this mausoleum of men’s lost hopes. Years ago it was my sad task to visit the Patent Office Library in order to see what new inventions connected with building and architecture had made their appearance, and the experience was astonishing for the evidence it afforded of the scores of trivial things which people imagine are going to make a small fortune for them. I suppose it is all the result of those persuasive circulars that catch us with the romance of invention, and tell us how many thousands were showered upon the man who thought of adding a piece of india-rubber to the end of a pencil, and how “Dancing Jim Crow” enabled its inventor to live happily ever afterwards. All this is the bright side of invention, and we must always feel rather resentful when the anti-optimist suggests the bare possibility, if not the probability, of another side; nevertheless, I would commend a visit to the Patent Office Library. It will prove an ultimate boon to many who imagine that a window fastener, or a machine for moulding concrete blocks, or a folding-stool for drawing-offices, is going to amass money for them. To be successful in this matter, one should first be an optimist and then a pessimist, and, above all, one should have a very clear idea of how to put an invention on the market. It is, indeed, more difficult to place an invention than to devise one: which, reversing the ordinary positions of inventor and manufacturer, explains how it is that some trivial things often confront our eyes at places like the Building Trades’ Exhibition, and enable their promoters to wear silk hats of exceptional glossiness and to smoke cigars of phenomenal length.

\* \* \* \*

A few days ago, when turning the pages of a new book on architecture, and reading there the list of authorities whom the author had consulted in the preparation of his work, the idea struck me, how extremely embarrassing it would be for architects if any such list were exhibited, in a neat frame, in the main entrances to their buildings. Information of somewhat the same character is sometimes afforded in respect of an architect who is dead, but the horrific ghost of the law stops anything of the sort being said publicly in connection with a new building. But supposing, for the moment, that a truthful statement were enforced by Act of Parliament, how many reputations would be shattered! A typical description of a new public building might read thus:—“The main scheme for this design, selected in competition, was taken from a plan by Messrs. — for a building at —, which was published in the building napers for 1906, Messrs. — themselves having taken their scheme from someone else’s, unknown. The entrance to the building embodies motifs borrowed from a variety of sources, but a French portfolio issued during the last century has provided the bulk of the design. Passing within the vestibule we see a fine hanging lamp which is

practically a replica of that shown on page 24” of —’s book on metalwork design. In the main hall we notice an exceptional profusion of ugly detail on the woodwork and plasterwork; this is original design by the architects; but the marble arcade (taken bodily from S. Maria at Perugia) and the armorini above (copied completely from those by Cibber on the south front of Hampton Court Palace) are elements that very largely redeem the general effect. Finally it should be stated that very little actual designing was done by the nominal architects, whose time has been so largely occupied in seeking possible new clients, and in lurching them when found, that the work has had to be delegated to Mr. —, their head assistant, whose chief merit is that he is prepared to do a great deal of work for a very small salary.”

\* \* \* \*

No one being considered orthodox who, when repeating a joke, does not cover himself with the proviso that it appeared in “Punch,” I will follow the usual practice. To the contention, then, of the foreman-worried bricklayer, that Rome was not built in a day, and to the foreman’s rejoinder that he hadn’t charge of that job, I will add nothing, the whole incident being self-contained; but I will bring forward the fact, unknown to many of my readers, that if Rome was not built in a day, the Ellington Council School was. The descriptive reporter of the “North Mail” gives us the information—thus: “The Education Committee of the Northumberland County Council found itself faced here, as elsewhere, with the problem of additional accommodation. At headquarters, Mr. G. T. Forest, the architect, called to mind certain wonderful structures that had come before his notice, and as a result, it was decided to give Ellington the first portable school of the kind built in this country. At this time last week the new school did not exist. By Wednesday morning the scholars were taking their seats. How was it done? . . . The secret of its rapid erection lies in the fact that it was brought by rail from London in fifteen packages, the various pieces were fitted into another like a box of bricks by five men, and the building was finished within one day. . . . The school consists of two classrooms, divided by a cloakroom. The component parts of the structure weighed altogether just over seven tons, and from floor to roof each piece is numbered in a fashion that renders the erection a simple matter. The interlacing of the various parts might really be termed on the ‘hook-and-eye’ principle. The floor being first laid, the builders speedily got the walls in position, and interlocked them with base and roof. . . . ‘We have Standards I. and II. being taught here now, and there are sixty-five scholars here this morning,’ remarked the head mistress. . . . ‘It is a fine structure,’ said the head master. ‘Only one skilled man came with the parts, and the rest was done by local labour.’ . . . Who knows but that the ‘Ellington style’ may become as much a boon to harassed education authorities as the Gothic and Queen Anne have been to builders? . . .”

How jolly this all is. I certainly shall not attempt to spoil it by elaboration. Here, indeed, is a modern classic in architectural literature. I believe on a former occasion I referred to that fine description of a new pavilion at a South Coast resort which was ventilated on “the fresh-air principle,” but the above account of “the Ellington style,” or architecture on the hook-and-eye principle, completely eclipses it. And what I particularly would like to know is, if this school was built in twenty-four hours, what have the contractors on the London County Hall been doing these many years?

UBIQUE.







entitled to my opinion upon the economy of a classroom for 48. The economy referred to does not wholly confine itself to cost, as I think the context shows. A room for 60 scholars will be more than 24 ft. wide, and therefore it will be required to be 14 ft. high. Obviously the closet accommodation mentioned refers to secondary schools.

Mr. Robson naturally speaks with great authority on school matters. The borrowed lights shown in Figs. 1 and 2 [page 193, February 19th] were not intended as indicating a means of subsidiary lighting, but rather as the means (now becoming less popular) of providing external supervision, though of course the corridors themselves sometimes require such lights. Fig. 2 I certainly intended as an illustration of a plan to be avoided; the height of such a room to be efficiently lighted would have to be most wasteful. If this is not obvious to the general reader, I am much indebted to Mr. Robson for pointing it out. As regards the type of plan for buildings of varying storeys, I should like to see no classrooms more than 20 ft. wide; or, if this is unattainable in elementary schools, to have a new regulation allowing a decrease in height for successive storeys above the ground—given satisfactory means of ventilation.

ALAN E. MUNBY.

*Mr. Wells's Presidential Address.*

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—This discussion arose about Mr. Wells's statement of fact as to increase of lever-arm in certain circumstances. Having merely entered the controversy in order to confirm the statement, now that Mr. Waldram is apparently convinced that Mr. Wells was right I do not intend following Mr. Waldram into a desultory discussion of the L.C.C. Regulations or other matters appertaining to reinforced concrete construction. As, however, his letter given on p. 221 of your issue for February 26th last misrepresented what I said in my letter given on p. 170 of your issue for February 12th I feel compelled to make a further reply.

I did not say that I had determined the so-called "modular ratio" by experiments upon the two materials separately—I said that I had determined the *modulus of concrete* separately, and I referred to various scientists who had done the same. The value of  $m$  as used in empirical formulæ such as those of the English Joint Committee is quite another matter. If it were truly what it purported to be it could be found from experiments on the two materials separately. I am well aware that Professor Talbot and Professor Turneure advocated, from a study of their own experiments upon rectangular beams made some years ago, that  $m$  should belie its name by being made a mathematical constant that should serve to make the empirical formulæ approximately fit the results of experiments, but it is fairly obvious that such a constant could only be applied with any assurance in conditions nearly identical with those of the test pieces experimented upon, and that we could not properly depend upon a value derived from one set of experiments fitting another different set of conditions, *i.e.*, as to form, materials, size and location. In the last paragraph of my letter to you referred to above I particularly alluded to this, while in my first letter, given on p. 117 of your issue for January 29th last, I was careful not to admit the correctness of the analysis upon which the Joint Committee's type of formula is based. I quite agree with Mr. Waldram that neglect of the tensile resistance of the concrete and wrongly estimating the ultimate crushing strength will often make great differences between formulæ and fact, but when we either allow for the effect of tension in the concrete or treat conditions where it is of little or no consequence, and when we give the proper

value to the compressive resistance, I cannot admit that a possible error of 10 per cent. in the lever-arm would become of no importance. Though outside the immediate point at issue, I would add that the relation between the moduli is not only of importance in respect to the lever-arm in singly reinforced beams, but is of great importance in respect to compressive reinforcement generally.

London, S.W.

H. KEMPTON DYSON.

*Ipswich Garden Suburb Competition.*

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—I wrote to the Town Clerk of Ipswich asking him whether or not it was the intention of the committee in charge of this competition to commission the author of the winning design to carry out the work. His reply—that "the committee do not bind themselves to commission any person to carry out their scheme"—will doubtless be of interest to any intending competitors. It is evident that the work asked for could hardly be done in their own surveyor's office for less than the amount of the premium offered.

Birmingham.

ADSUM.

*Smoky Chimneys.*

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—Mr. Collard's analogy of the hock bottle and the square-shouldered medicine bottle hardly applies to the case of the chimney throat, as in the latter the air necessary to replace the smoke does not have to pass down the flue. If he will knock the bottoms out of the hock and medicine bottles he will find that liquid will pass from the neck of either with equal facility.

Mansfield.

L. E. W.

R.I.B.A. PROBLEMS IN DESIGN.

WE publish on page 275 another design for a colonnaded screen recently approved by the Board of Architectural Education. This design is by Mr. B. W. Weekes, of the Liverpool School of Architecture. The screen was required to be 100 ft. in length, connecting two wings of a building 60 ft. in height.

SCULPTURE ON THE PARIS OPERA HOUSE.

THE beautiful group of a horse and female attendant which is reproduced, as the eighth example in our series of details of sculpture on the Paris Opera House (p. 277), is a terminal to one side of the sloping curtain wall that stands up behind the main block of the building. A similar group (which we shall illustrate next week) is placed at the opposite extremity.

MODERN SMALL HOUSES.

AS the concluding example in the above series we illustrate on page 281 a house at Forest Row, Sussex, designed by Mr. E. Turner Powell, F.R.I.B.A. This house is erected on a site overlooking the golf links. The walls and chimney stacks are built of local sandstone, a local stone also being used for the pavings to the entrance and the shelter. Old roofing tiles cover the roof, and similar tiles are employed for weather-tiling the end gables. In the best part of the house the joinery is of oak. Leaded lights and iron casements are used in the windows. The contractors were Messrs. H. and E. Waters, of Forest Row, Sussex. In our next issue we hope to begin a new series of houses of a larger type.





*Photo: Bedford Lemere & Co.*

NEW BUILDING FOR BRITISH BANK OF SOUTH AMERICA, MOORGATE STREET, LONDON, E.C.: MAIN ENTRANCE.

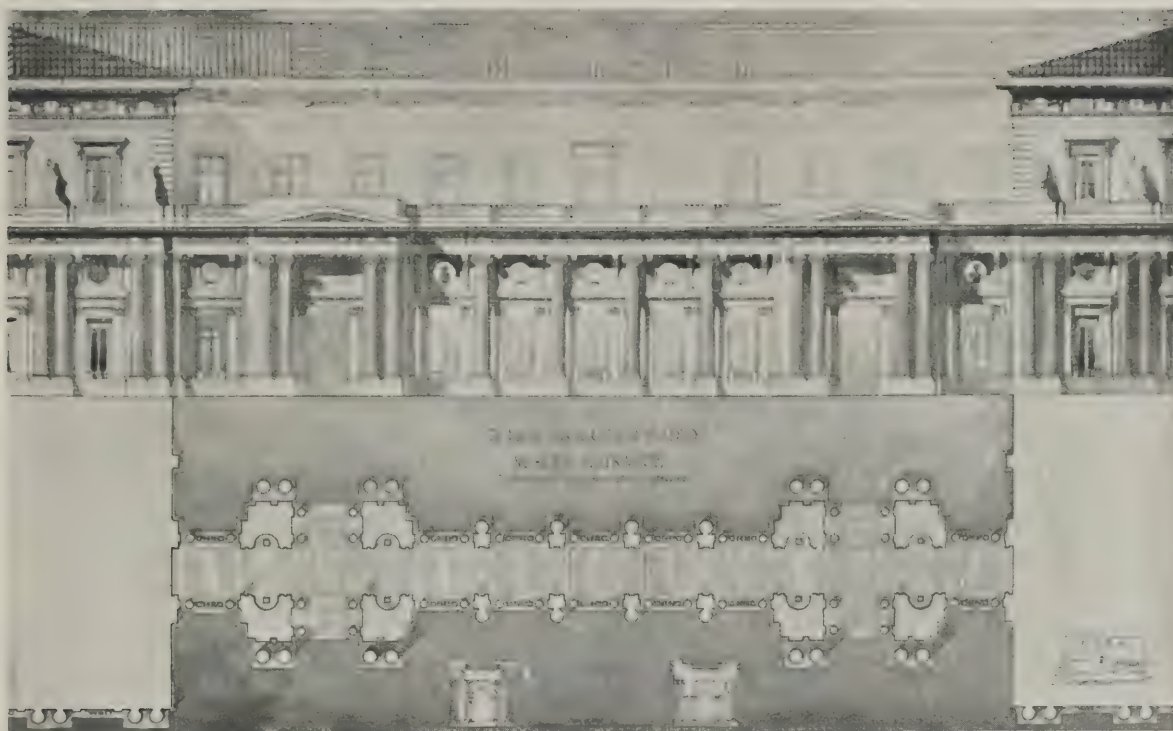
DUNN AND WATSON, F.F.R.I.B.A., ARCHITECTS.

*(See page 267.)*





STUDENTS' PAGE.



TESTIMONIES OF STUDY FOR R.I.B.A. FINAL EXAMINATION: APPROVED DESIGN,  
SUBJECT VI. (a), A COLONNADED SCREEN.—BY B. W. WEEKES.

(See page 272).





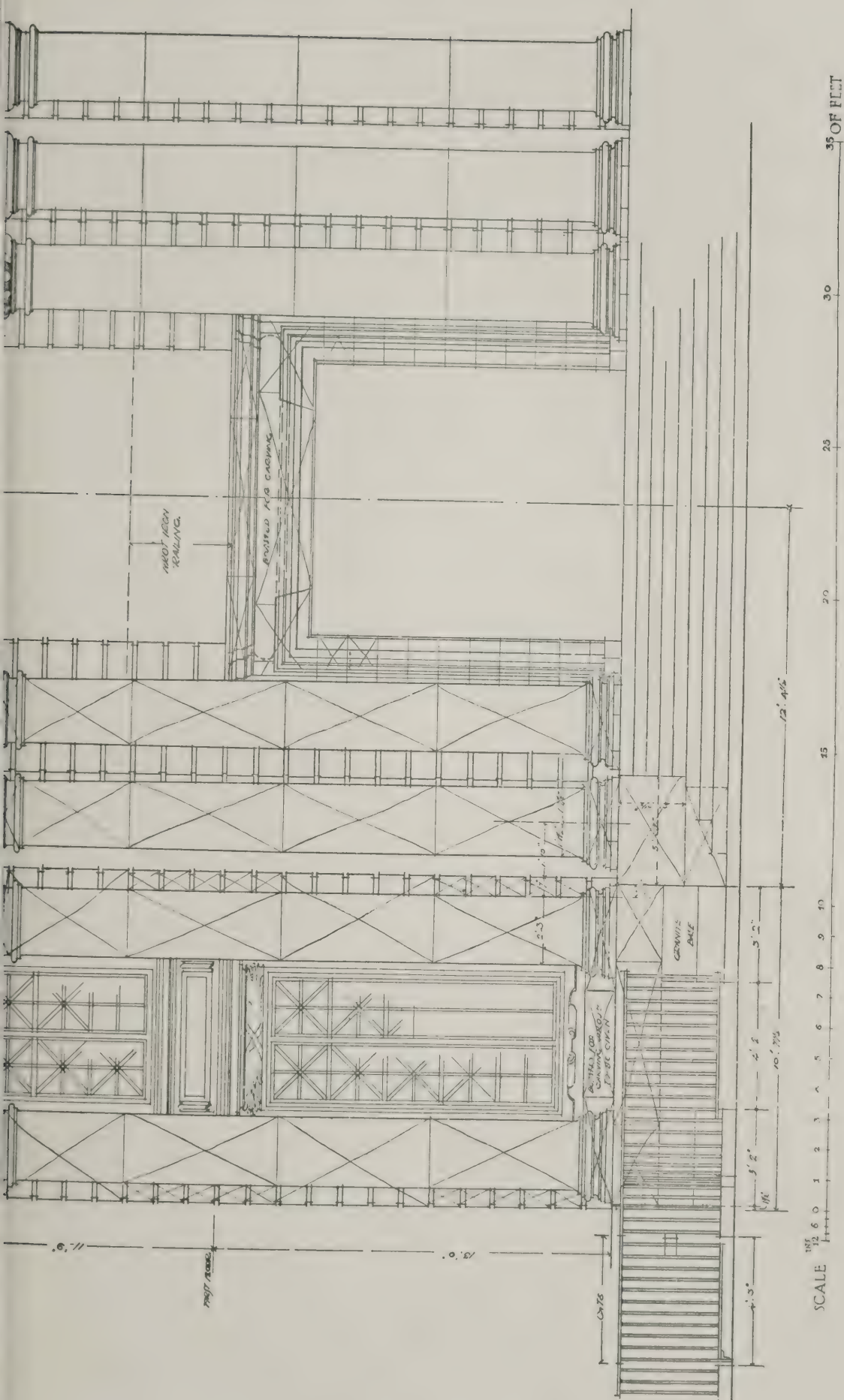


DETAILS OF SCULPTURE FROM THE OPERA HOUSE, PARIS—VIII.

(See page 272.)







WORKING DRAWINGS BY WELL-KNOWN ARCHITECTS—XIX.  
LANCHESTER AND RICKARDS, F.F.R.I.B.A., ARCHITECTS.

## THE THIRD CHURCH OF CHRIST SCIENTIST.

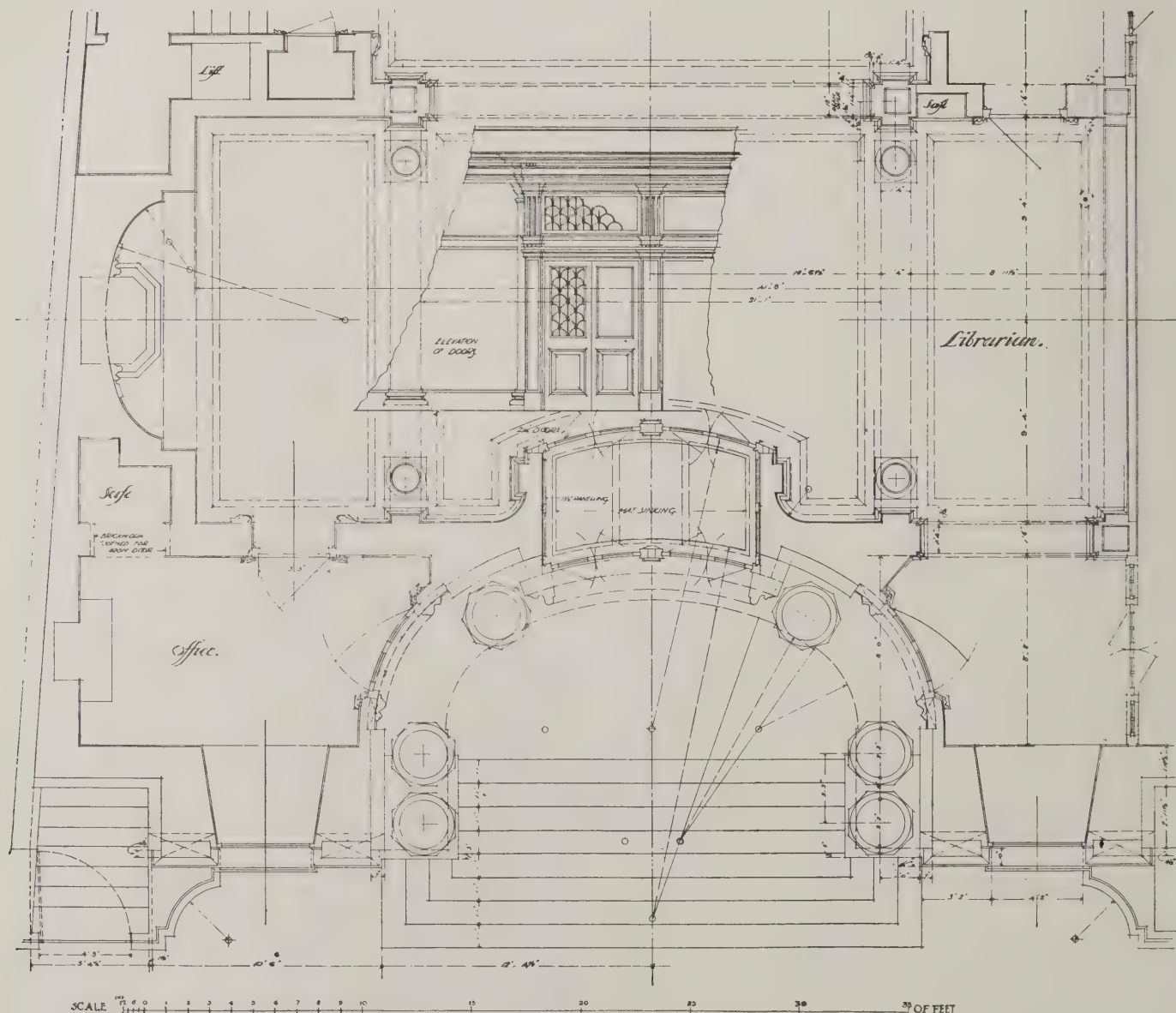
**M**ESSRS. LANCHESTER AND RICKARDS have a remarkably fine series of buildings to their credit. It is only necessary to mention the Hull School of Art, the Deptford Town Hall, the Cardiff City Hall and Law Courts, and the Wesleyan Hall at Westminster, in order to recall work of uniformly good quality; while many schemes which got no further than the competition strainers have borne equal testimony to the high ability of their designers.

The Third Church of Christ Scientist, Mayfair, is a further characteristic example of the work of Messrs. Lanchester and Rickards. There is, indeed, such a strong family likeness in all their designs that little difficulty is found in recognising the office from which they emanate. Every architect has at his disposal a regular means of expression, which is determined by his own choice and ability. He acquires an individual manner, which he may quite legitimately apply to every building that comes to his hand, so long as the expression is logical. The work of Messrs. Lanchester and Rickards affords a good illustration. It is similar

throughout, but never the same; and in the first instance it is developed out of a very careful consideration of planning.

The Third Church of Christ Scientist is of reinforced concrete construction, the exterior being embellished with some admirable leadwork and stone carving, the latter by Mr. H. C. Fehr. The main entrance takes the form of a semi-oval recess, crowned by a wide arch projecting up into the second storey and coved and coffered above the cornice level. The arrangement may be studied from the working drawings which we reproduce in this issue. The exterior is shown by the illustration on our Centre Plate. A large entrance hall gives access to a reading room on the right and to an office on the left. At one end a staircase descends to the corridor that leads to the main floor level of the church and to the lower hall; while a smaller hall and numerous offices are arranged on the first floor.

Internally a feeling of exceptional spaciousness has been produced, although the site is by no means exceptionally large. The whole space is unobstructed, and the arrangement of the side galleries adds greatly to the effect. Galleries generally detract from the size of an interior, but the present instance is an exception to the rule, more particularly because the floor at the south end of the church is raked to the level of the entrance hall; the whole area being seated with chairs.



THIRD CHURCH OF CHRIST SCIENTIST, CURZON STREET, MAYFAIR: PLAN OF FRONT, AND DETAIL OF ENTRANCE DOORS.  
LANCHESTER AND RICKARDS, F.F.R.I.B.A., ARCHITECTS.





*Supplement to THE ARCHITECTS' AND BUILDERS' JOURNAL, Wednesday, March 12th, 1913.*







*Photo: Bedford Lemere and Co.*

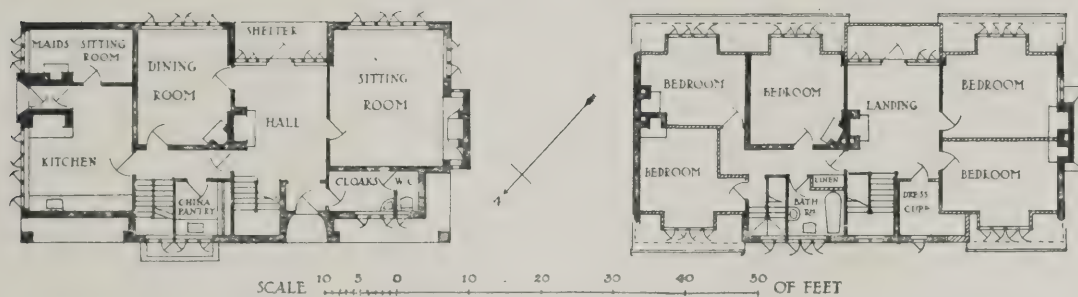
THIRD CHURCH OF CHRIST SCIENTIST, CURZON STREET, MAYFAIR, LONDON.  
LANCHESTER AND RICKARDS, FF.R.I.B.A., ARCHITECTS.







Garden Front.



Entrance Front.

MODERN SMALL HOUSES. XX.—"THE OLD WELL COTTAGE," FOREST ROW, SUSSEX.

E. TURNER POWELL, F.R.I.B.A., ARCHITECT.

(See page 272.)

## FIRE PREVENTION NOTES.

*A Manual for the Use of Fire Brigades.*

So great is the complexity of the fireman's duties that a manual in which they are enumerated, classified, and expounded should be a real boon to those who will take the trouble to study it, no matter what their interest in the subject may happen to be—or whether they are simple firemen, brigade officers or organisers, architects who desire to see building construction from the fire-brigade point of view, or miscellaneous citizens, such as property-owners of all classes, who ought to be glad to have at their service a manual dealing so tersely and authoritatively with all the phases of fire-extinction and incidentally with some of the means of fire-prevention.

*Common Causes of Fires.*

Of very general interest is the section on fires and fire causes, which are considered under the following heads: Chimney fires, fires in warehouses and large stores, in theatres and public institutions, in chemical works, rules for handling acids, what is an explosive? explosives, their components and uses, how to destroy explosives, cinematographs, the behaviour under fire of tobacco, cotton, jute, timber, and other materials. Concerning places of entertainment, it is very judiciously observed that, to prevent panic, a theatre should not only be made safe, but be made in such a way that the audience would know it to be safe. It ought not to be necessary to say, however—but unfortunately the caution is justified, even at this time of day—that “a licensing authority should not permit the existence of any exit requiring a guide, and the distance from the spot in which the most remote visitor is seated to the point of absolute safety ought not to exceed 200 ft. or 250 ft.”

*Fire-Protective Building Construction.*

A section of the book that is no less interesting than useful is that which is headed “Building Construction in the Fire Service.” This begins with a brief historical survey of the methods of building practised at different periods, which are thus classified: (1) The old buildings erected previous to the year 1800; (2) those erected in the first half of the nineteenth century; (3) those erected after that period, when cast-iron was used for columns, girders, and fitch-plates in lintels, bressummers, etc.; (4) those erected after the introduction of rolled iron and steel joists, girders, and stanchions, with concrete floors of the so-called fire-proof construction period; (5) those erected after the introduction of fire-resisting casing to protect the iron and steel work from the action of fire, etc., previous to the introduction of reinforced concrete. In (1) old buildings the woodwork near fireplaces is apt to become desiccated to mere touchwood, subject to combustion from a rise in temperature accompanied by an inrush of air supplying the necessary oxygen, and a constant cause of the spread of fire is noted in the panelling to walls and partitions, behind which there is often a space in which fire can proceed unnoticed from floor to floor. In the large brick mansions belonging to the latter part of this first period, the brick partition walls are seldom carried up beyond the ceilings, so that immediately under the roof there is an uninterrupted space co-extensive with the area of the building, which therefore soon becomes entirely involved when once fire has broken through any top-floor ceiling.

*Fire-inviting Construction.*

Cast-iron columns, stanchions, girders, fitch-plates, etc., came into extensive use in the construction of shops, warehouses, and other business buildings about the middle of the nineteenth century. At about this time, buildings of the warehouse class seemed to be expressly designed to take fire easily and burn rapidly. The upper portion of this style of building was frequently composed of mansard roofs boarded and slated, with large window frames made of wood. The light and air well-holes in the centre of warehouses were also a dangerous kind of construction which favoured the spread of fire. The walls and ceilings were frequently lined with matchboarding, for the sake of quickness in finishing off and for the convenience of attaching shelves and fittings, as well as for additional dryness for storage purposes. Staircases and lifts were also lined with the same material, which has unfortunately proved the means of carrying the fire from floors to roof on many occasions. Boarding and felt were introduced during this period for covering roofs under the slates and tiles, instead of simple battens or laths. It added to the combustible nature of the roofs, but acted as a protection from falling slates or tiles in the early stages of a fire.

*Uncased Ironwork.*

The wholesale destruction by fire of buildings of this type led to an attempt at fireproof construction in which the joists and columns were of iron, while concrete was “laid in” between the joists. Fires in buildings of this kind resulted in complete wreckage of the structure, owing to the contortions assumed by the ironwork under heat. These disasters showed the necessity for casing the ironwork with some efficient fire-resisting material like asbestos or concrete, and the results of this method have been so satisfactory as to make it a standard practice. Finally came the invention (1) of various fireproof partition slabs, which, light, durable, and fire-resisting, are among the architect's most convenient resources, while the introduction of expanded metal and similar substitutes for wood lathing represents a further important advance: (2) fire-resisting glass for windows and skylights, which is of proved value in checking the spread of fire; and (3) reinforced concrete construction, which is to-day recognised as affording the least combustible type of building.

*“Spontaneous Combustion.”*

Among the many causes of what is conveniently if inaccurately called “spontaneous combustion,” the following are the most common. The heaping together of a large amount of charcoal, small coal, or fine coal-dust, especially if the last-named is damp; the flame generated by closely packed charcoal has caused explosions in gunpowder factories. The association of lamp-black and linseed oil, with the former in excess. Rags or waste impregnated with oil and thrown in a heap. “If sawdust impregnated with droppings of oil—cottonseed or other—gets mixed up with rubbish, as is common enough where due care is not observed, fire is almost sure to be the result.” Fires often arise from the so-called spontaneous combustion generated in receptacles into which greasy rags, smeared with lard, butter, oil, tallow, or what not, are thrown by ignorant or careless servants, and when the house is burnt down the newspaper reporter will be sure to attribute the outbreak to one or another of the three causes beyond which his professional jargon seldom extends, (1) “a defective

flue,” (2) “an overheated furnace in the basement,” or (3) “the fusion of an electric wire!” This “Manual for the Use of Fire Brigades,” issued by the National Fire Brigades Union (31-33, High Holborn, London, W.C.), at the modest price of 2s. 6d. net, is an exceedingly useful book, not only for professional firemen, but for all—and that includes everybody who aims at efficient citizenship—who are interested in the very vital subject of fire prevention and fire extinction.

## FIRE OFFICES' COMMITTEE'S RULES FOR MILLS.

The winter months through which we have just passed having been extraordinarily prolific in destructive fires at mills and factories, occurring, of course, mainly in the North of England and in Scotland, it is therefore opportune to give here the rules of the Fire Offices' Committee for the fire-resisting construction of cotton mills, flax mills, woollen mills, and worsted mills:

## STANDARD IA.

*Height and Area.*

1. Height not to exceed four storeys and cellar. The ceiling of the cellar not to be more than 3 ft. above the lowest point of the land level or ground line of the site on which the building stands.

2. Superficial area of any one compartment not to exceed 25,000 square feet internal measurement, excluding area of window recesses and doorways.

N.B.—The height of any compartment, excluding cellar, to be not less than 12 ft., measuring from the floor level to the highest point of the ceiling.

*Walls.*

3. Brick, terra-cotta, and/or cement concrete composed of broken brick, burnt ballast, furnace slag, clinker, or other similar hard and burnt material.

4. No external, area, or party wall or division wall (*i.e.*, a wall between two compartments whose aggregate area exceeds 25,000 sq. ft.) to be less than 13 in. thick in any part, or if of concrete 20 in.

N.B.—Stone used externally only as ashlar or facing, with a backing of brickwork not less than 13 in. thick, and for dressings, sills, string-courses and cornices, allowed.

5. If there is any building adjoining, the party wall to extend at least 3 ft. above the roof of the fire-resisting building.

*Partitions.*

6. All internal partitions to be of incombustible material, excepting only office enclosures of hard non-resinous wood with or without glazing.

*Flues.*

7. All flues to be built of brickwork, no part of which towards the interior of the building is to be less than 9 in. thick, and all furnace flues to be lined with firebrick throughout for a distance of at least 20 ft. from the furnace. No timber or woodwork to rest in or be plugged into the brickwork of any flue.

*Openings in External Walls.*

8. The total area of openings in the external wall of any storey not to exceed one-half of the area of the wall (measured as to height from floor to ceiling of the storey in which the openings occur). All loophole or teagle doors and frames and window frames and sashes to be of iron or other hard metal.

9. Every window or other opening opening (whether directly or diagonally) and within 20 ft. of any window, skylight,



or glazed or other opening in any other building (whether such latter window, skylight, or opening be protected or not), or overlooking (whether directly or diagonally) and within 20 ft. of the non-fireproof roof of any building to be protected by "fireproof" shutters or "fireproof" doors which are automatically self-closing in case of fire.

#### Floors.

10. Brick arches, terra-cotta, fireclay, or concrete as above described, the floor being in no part less than 6 in. in thickness, and carried on metal joists, girders and columns, or brick walls or piers.

11. Wooden flooring laid on the above allowed, provided there is no intervening space. Wooden fillets not exceeding 3 in. deep permitted if laid on brick arches, terra-cotta, fireclay, or concrete as above described, the intervening spaces being filled with incombustible material.

N.B.—Solid floors of wood not less than 9 in. thick, ceiled with plaster, and covered with floorboards laid without intervening space, provided they have a lining of waterproof material between the floor and floorboards, may be allowed.

12. Scuppers to carry off water, the opening of each of which shall not be less in area than 21 superficial inches, to be provided in the external walls to each floor at intervals of not more than 25 ft.

#### Roofs.

13. Roofs to be entirely of the incombustible materials as described for floors in Rule 10, except that 4 in. be substituted for 6 in. in thickness, but there may be erected above them light shelters or roofs constructed entirely of incombustible materials.

NOTE.—Glass not less than  $\frac{1}{4}$  in. thick in sections not exceeding 36 superficial inches, set in iron or other hard metal, and wired glass or electro-copper glazing in accordance with the Rules of the Fire Offices' Committee in force when such glazing is provided, shall for the purpose of this rule be deemed incombustible.

Outlets on to roofs rendered necessary to satisfy the requirements of the Factories and Workshops Act permitted, provided that all doors and frames be of iron or cased in iron-plate at least  $\frac{1}{8}$  in. thick, and that they be self-closing.

#### Protection of Structural Metal Works.

14. All columns or stanchions to be covered with brickwork or porous terra-cotta (at least 2 in. thick) or with cement, concrete, or plaster at least  $1\frac{1}{2}$  in. thick, keyed into metal supports and protected by a metal guard up to a height of not less than 4 ft. from the floor where cement, concrete, or plaster only is used.

15. Girders, joists, lintels, and all structural metal work (other than columns and stanchions, but including framework of roofs), where not covered with brickwork, to be completely encased in porous terra-cotta at least 2 in. thick, securely anchored, or cement, concrete, or plaster at least 1 in. thick keyed into metal supports.

16. Space must be left at the ends of girders and joists to permit of expansion.

#### Linings and Ceilings.

17. No lining of wood or textile fabric, to any part of the walls, partitions, ceilings, or roof.

#### Floor Openings.

18. No openings through any floors allowed except holes to admit steam, gas, and water pipes, and iron or earthenware tubes for electric conductors. All pipes and tubes to be cemented round the full thickness of the floor.

N.B.—All staircases, hoists, rope and strap races, and gearing towers to be external to the four walls of the building, and constructed entirely of brick or cement concrete as above described at least 9 in. thick.

Hoists must be constructed in the staircase enclosures, and no opening thereto to be less than 6 ft. from any opening into the building. Excepting hoists the enclosing walls must be carried through and 18 in. above the roof of the building, and the roofs, stairs, and landings of said enclosures must be constructed of incombustible material. No openings permitted between the building and the rope and strap races and gearing towers, and each opening from the staircase into the building to be protected by a "fireproof" door.

#### Shafting through Walls.

19. Shafting where passing through walls to fit closely into wall, or have wall boxes closed with iron plates, not less than  $\frac{1}{4}$  in. thick, leaving no open space.

#### Pipes and Electric Conductors.

20. All pipes in the building except water pipes not exceeding  $1\frac{1}{2}$  in. in diameter, to be of hard metal. No wooden casing to be used for enclosing electric conductors.

#### Communicating Compartments.

21. Two or more compartments, each constructed in accordance with these rules, may communicate, whether by double "fireproof" doors or otherwise, provided that their aggregate superficial area does not exceed 25,000 sq. ft.

22. Two or more such compartments, whose aggregate superficial area exceeds 25,000 square ft., can only be allowed to communicate across a fireproof compartment, built up from the basement with walls of solid brickwork, and constructed in all other respects in accordance with these rules so far as the same are applicable, and having all openings protected by fireproof doors at least 6 ft. apart.

23. Except as above no communication allowed between a compartment constructed in accordance with these rules and any other compartment.

The offices of the Fire Offices' Committee, which issues these rules, with others applicable to different classes of buildings, are at 65 and 66, Watling Street, E.C.

### PROTECTING ST. PAUL'S AGAINST FIRE.

An exhaustive practical test has been made at St. Paul's Cathedral of the new system of high-pressure water mains which has been installed there. There were present Canon Alexander, the treasurer; Lieutenant Sladen, Chief of the London County Council Fire Brigade; Mr. Gamble, his second in command; Mr. Mervyn Macartney, architect to the cathedral; Mr. Cook, the engineer who has carried out the installation; and Mr. Bolwell, clerk of works for the cathedral. Schemes of a similar kind have been devised and placed in position already in the cathedrals at Canterbury, Winchester, Lincoln, Truro, and elsewhere. The principal feature is the forcing of water by means of hydraulic machinery through special mains, so that not only does the jet attain a great height, but hydrants can be placed at the top of buildings both inside and out in situations where they may be employed with the greatest effect.

The necessary machinery, which consists of a specially designed hydraulic injector,

has been set up in the crypt, close to where the engine stands which manipulates the supply of wind to the organ. A length of hose led from the high-pressure supply in the crypt and passed up the steps to the ground level on the western side. The jet of water thrown from the nozzle, which was of the ordinary type, was sent flying as high as the cornice of the main roof of the cathedral. The pressure of water at this stage was 180 lb. to the square inch, and the height it reached was 110 ft. Next, instructions were given to try a hydrant which is in the Golden Gallery at the summit of the Dome. That is over 300 ft. above the level of the street. The jet of water, handled by one man, played all over the surface of the dome. An ascent was then made by way of the staircase in the North Tower to the main roof of the cathedral, and here again the hydrants were set to work. In each case the supply was ample and very powerful. The system is regarded as calculated to secure the speedy extinction of any outbreak of fire, no matter in what part of the cathedral it might make its appearance, and as solving the difficulty of getting an adequate pressure of water in the upper portions, the height of which makes the ordinary appliances practically of no avail. A complete installation of lightning conductors of the latest kind has also been made, the ends being "earthed" in the ground on the north side.

### TRADE AND CRAFT.

#### "Ozonair" and Ventilation.

It is not in the nature of definitions to be at once terse and accurate, but a near approach to this consummation is made in the statement that "ventilation may be said to be the art or science of changing or renewing the air inside any enclosed space." This is rather neat. It appears at the beginning of a well-written brief treatise on ventilation introductory to an illustrated description of "the 'Ozonair' System of Pure Air Ventilation," which has been issued in pamphlet form by Messrs. Ozonair, Ltd., 96, Victoria Street, Westminster. A more extended definition is added: "Theoretically, the correct method of ventilating is to introduce into the space in question just that quantity of fresh air required to give the necessary degree of change and purity, without draughts or uniformity and without excessive heat or excessive humidity." The implied object is attained by the "Ozonair" system, which is so arranged that draughts are avoided, whilst the amount of air and strength of added ozone are adjusted in accordance with the temperature, the state of the barometer, the number of people present, and any other desired conditions. In this system the air passes through a filtering screen which cleanses it from impurities and can be so arranged as to regulate its temperature. The cleansed air passes into a mixing chamber, where it is further purified and partially sterilised by the addition of a minute quantity of pure ozone. The purified fresh air is forced by a fan into the building through ducts, which are provided with openings at suitable points. Any existing system can be converted at small cost. A full description of the apparatus is given in the pamphlet, which contains a list of some important installations of the system, as in the House of Commons, the Law Courts, various London and provincial theatres, banks, hotels, restaurants, business houses, factories, etc.



## COMPETITIONS.

### *New City Hall, Winnipeg.*

Mr. Leonard Stokes, F.R.I.B.A., the assessor in this competition, has awarded the first premium (£1,000) to Messrs. Clemoska and Portnall, of Regina—formerly of Preston and Shanklin, Isle of Wight, respectively. The building is estimated to cost £600,000. Thirty-nine British and Canadian architects submitted designs.

### *Swimming Bath, Bootham School, York.*

In a limited competition for the above the design of Mr. Ralph W. Thorp, A.R.I.B.A., of London, W.C., has been placed first. Mr. Walter H. Brierley, F.S.A., F.R.I.B.A., of York, was the assessor.

### *Bradwell Sanatorium, Stoke-on-Trent.*

Seven architects competed in a local competition in which plans were required for the enlargement of the above, and the plans were submitted to Mr. A. G. Bond, B.A., A.R.I.B.A., of London, for his adjudication. He has selected the design submitted by Messrs. A. R. Wood and Son, of Tunstall, Stoke-on-Trent, and the committee have confirmed the selection.

### *New Municipal Offices and Guildhall, Devonport.*

The following particulars are abstracted from the conditions issued in connection with the above open competition: Assessor, Mr. Ernest Newton, A.R.A., F.R.I.B.A., "whose decision shall govern the award of the premiums and shall be final and binding in all stages of the competition." Site comprises about  $3\frac{1}{4}$  acres, and is free of buildings. It has frontages to four public roads. Guildhall to accommodate 1,500 persons on main floor, and 200 in gallery. Cost of buildings not to exceed £95,000, exclusive of architect's and quantity surveyor's fees, wages of clerk of works, and furnishing, but inclusive of permanent fittings, drainage, lighting, etc. Clerk of works, approved by and under control of architect, will be employed at expense of corporation. Corporation reserve right to appoint a quantity surveyor (subject to architect's approval), to be paid by them. Plans of site supplied, with levels, but this will need to be verified by the successful architect, who will be responsible for the accuracy of his drawings. Schedule of accommodation and requirements given in detail (guildhall, town clerk, borough surveyor, medical officer, water engineer, quarter sessions and police courts, weights and measures, fire station, etc.). Premiums £350, £150, and £100 for designs placed first, second, and third, the first premium to merge into architect's commission at 5 per cent. plus travelling expenses. It is suggested that the building should be classical in style and that a dignified effect be aimed at, and a lavish use of ornaments

deprecated. Designs to be accompanied by description of building, short specification of materials to be used, statement of cubical contents, and price per foot cube, as well as total cost. Drawings required—block plan, floor plans, elevations, and sections to 1-16th scale, with  $\frac{1}{2}$ -in. detail of elevation; no perspectives allowed. Drawings to be in ink or pencil, washed over in grey where needed, but not coloured. Designs by unsuccessful competitors will be returned free of cost. Designs will be publicly exhibited for seven days, and the assessor's award published. Last day for receiving designs, June 14th. Last day for submitting questions as to site or conditions, March 19th. Conditions from R. J. Fittall, Town Clerk, Municipal Offices, Devonport, on payment of a deposit of two guineas, returnable on receipt of bona-fide design.

### *Garden Suburb Houses, Ipswich.*

The following particulars are abstracted from the conditions issued in connection with the above competition: For lay-out of about 26 acres of ground as a working-class suburb on the lines of a modified garden city. Houses to be for clerks, artisans, and labourers, no house to contain fewer than three bedrooms. Premiums offered, 50, 30, and 20 guineas. Selected designs to become property of committee, who do not propose to employ a professional assessor "as a member of the committee is a partner in a well-known local firm of architects (no one connected with his office will be allowed to compete directly or indirectly, or give any assistance to any competitor)." Drawings required—block plan to 66 ft. to the inch, with  $\frac{1}{2}$  scale plans and front elevations of some of the houses. No perspective. Last day for submitting designs, March 31st. Conditions (with site plan) from Town Clerk, Town Hall, Ipswich, on payment of 10s. 6d., returnable on receipt of bona-fide design.

## LIST OF COMPETITIONS OPEN.

MARCH 19.—PLANS FOR SMALL SEMI-DETACHED HOUSE.—Proprietors of "THE ARCHITECTS' AND BUILDERS' JOURNAL" offer premiums of £5 5s., £3 3s., and £2 2s. for plans and section of a semi-detached suburban house (elevations not desired). For full particulars, see page 191 of our issue of February 19. Drawings to be sent in by March 19, to the Editors of "THE ARCHITECTS' AND BUILDERS' JOURNAL," Caxton House, Westminster.

MARCH 27.—HOSTEL FOR MALE STUDENTS, EXETER.—Exeter City Council invite designs. Assessor, Mr. Edwin Cooper, F.R.I.B.A. Conditions (£1 1s. returnable), on or before March 27, from Mr. H. Lloyd Parry, Town Clerk, Exeter.

MARCH 31.—GARDEN SUBURB, IPSWICH.—Competitive designs are invited for laying out about 26 acres of land as a working-class suburb on the lines of a modified garden city. Premiums, 50, 30, and 20 guineas. Conditions and plan (10s. 6d., returnable) from Mr. Will Bantoft, Town Clerk, Town Hall, Ipswich.

APRIL 18.—SECONDARY SCHOOLS, READING.—Reading Education Committee invite designs for Kendrick Boys' and Girls' Secondary Schools from architects within the borough. Premiums, 70 guineas and 30 guineas. Particulars, Education Office, Blagrove Street, Reading. Mr. Ernest Newton, A.R.A., F.R.I.B.A., is the assessor.

APRIL 19.—HIGH SCHOOL, MOTHERWELL.—Dalziel School Board invite de-

signs for a new high school. Assessor, Dr. J. J. Burnet, A.R.S.A., F.R.I.B.A. Second, third, and fourth premiums, £40, £30, and £20. Conditions to be obtained from Mr. Thomas M. Young, Clerk to the School Board of Dalziel, Motherwell. [The date has been extended from that previously announced.]

APRIL 21.—COUNCIL SCHOOL, NORTHAMPTON.—Northampton Borough Education Committee invite architects practising in the borough or county of Northampton to submit plans for a new council school. Conditions from Stewart Beattie, Secretary, Borough Education Offices, 4, St. Giles's Street, Northampton.

APRIL 29.—MUNICIPAL OFFICES, BARNET.—Barnet Urban District Council invite designs for new municipal offices, to be erected at a cost not exceeding £4,000. Premiums, £25, £15, and £10. Particulars from Mr. W. F. Wilkins, M.S.E., 40, High Street, Barnet. Designs to be delivered to Mr. H. W. Poole, Council Offices, 40, High Street, Barnet. [See note in our issue of February 12.]

MAY 31.—"IDEAL HOMES" EXHIBITION.—COTTAGES AND BUNGALOWS.—Designs are invited for (1) A workman's detached cottage; (2) a pair of workmen's semi-detached cottages; and (3) a bungalow for four single persons. The prize in each case is £50. Assessor, Mr. Leonard Stokes, F.R.I.B.A. Particulars (not later than March 15) from the Secretary, Ideal Homes Exhibition, 130, Fleet Street, E.C., to whom designs are to be sent.

JUNE 14.—MUNICIPAL BUILDINGS, DEVONPORT.—The Corporation invite designs for municipal buildings and a guildhall. Premiums, £350, £150, and £100. Assessor, Mr. Ernest Newton, A.R.A., F.R.I.B.A. Conditions (£2 2s., returnable) from R. J. Fittall, Town Clerk, Municipal Offices, Devonport, to whom designs are to be sent.

JULY 1.—ROYAL PALACE AND LAW COURTS, SOFIA.—Particulars of this competition are obtainable from the Commercial Intelligence Department, Board of Trade, Basinghall Street, E.C.

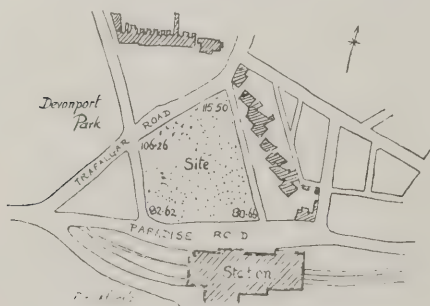
NO DATE.—KURSAAL, FOLKESTONE.—Cost not to exceed £29,000. Premiums, 100, 50, and 25 guineas; premiums of accepted design to merge in fees. Assessor, Mr. E. T. Hall, F.R.I.B.A. Apply to Town Clerk, Folkestone.

NO DATE.—SUNDAY SCHOOL, GRAYS.—Building Committee of the Baptist Tabernacle, Grays, invite plans for new Sunday school, at a cost not exceeding £1,100.—Particulars, Mr. F. Phillips, Wydene, South Stifford, Grays, Essex.

NO DATE.—HOUSING SCHEME, TIVERTON.—The Town Council of Tiverton invite plans and specifications for laying out a six-acre site and building working-class dwellings thereon. Competition limited to residents in Devon and Somerset. Particulars from Borough Surveyor, Tiverton.

### *Exhibition of M. Hulot's Drawings.*

By the courtesy of M. Bonnat, director of the Ecole des Beaux Arts, Paris, M. Hulot's prize drawings for the Grand Prix de Rome, 1901 (subject, "Une Académie américaine à Paris") are being brought over from Paris for exhibition in the R.I.B.A. galleries in connection with Mr. Fernand Billerey's paper on "Modern French Architecture," to be read before the Institute on Monday next, March 17th. The drawings will be on view from Friday, the 14th, to Thursday, the 20th.





## BELFAST WORKING-CLASS DWELLINGS COMPETITION.

MR. H. A. CUTLER, M.Inst.C.E., City Surveyor, Belfast, and Mr. Henry Seaver, B.E., president of the Ulster Society of Architects, the assessors in the competition in which designs for working-class houses were invited by Belfast Corporation, have announced their awards and issued their report. Designs for 126 houses of two apartments each, and for the same number of three-apartment houses, were required, and premiums of £25, £15, and £10 were offered. The selected designs, shown by the accompanying illustrations, were those submitted by Messrs. Chillingworth and Levie, of Cork and Dublin, who, in accordance with the conditions, will be appointed to supervise the carrying-out of the work from their designs. Twenty-six designs were received, but two competitors were disqualified.

In their report the assessors state that eight of the twenty-four designs exhibited outstanding merit, and from these the three finally adjudged the best were selected. The conspicuous merits of the winning design, the assessors say, are its extreme simplicity, economy of space (each block occupying only 54 ft. frontage, or 13 ft. 6 in. per tenement), easy access to the rear from each tenement, and possibility of having either a separate or common yard without change of plan. By arranging the houses in semi-detached blocks back passages and the monotony of a continuous row of houses have been avoided, the drainage is made easy and simple, and access to the houses rendered more private, and sheltered by entrances opening between the blocks instead of in the street. Attention is called to the recess

provided in each living-room for the accommodation of a bed as far removed as possible from the food cupboard and the range—a feature especially desirable in the two-room houses. The elevations, in the opinion of the assessors, are not without dignity, although treated in a very simple and inexpensive style, with plain walls and unbroken roof, obviously keeping down both first cost and annual outlay for repairs. The estimated cost of each block, maisonnette type, exclusive of railings and laying-out of ground at rear, is £352, or an average of £88 per tenement, and of the cottage type £180, or £90 per tenement.

The design showing the two-room house has been planned (the authors state) on similar lines to houses in Liverpool and Newcastle, and known in England as "Scotch houses." Each tenement is approached direct from the street by a separate door, the ground-floor house

having a living-room, with internal porch, bedroom, scullery, and small enclosed yard at rear. The houses on first floor have the same accommodation, with entrance from the street and a staircase leading to a common or separate yard at the rear for ground-floor tenants. It is suggested by the assessors that some improvement in the appearance in front may be made to avoid the monotonous grouping of the street doors.

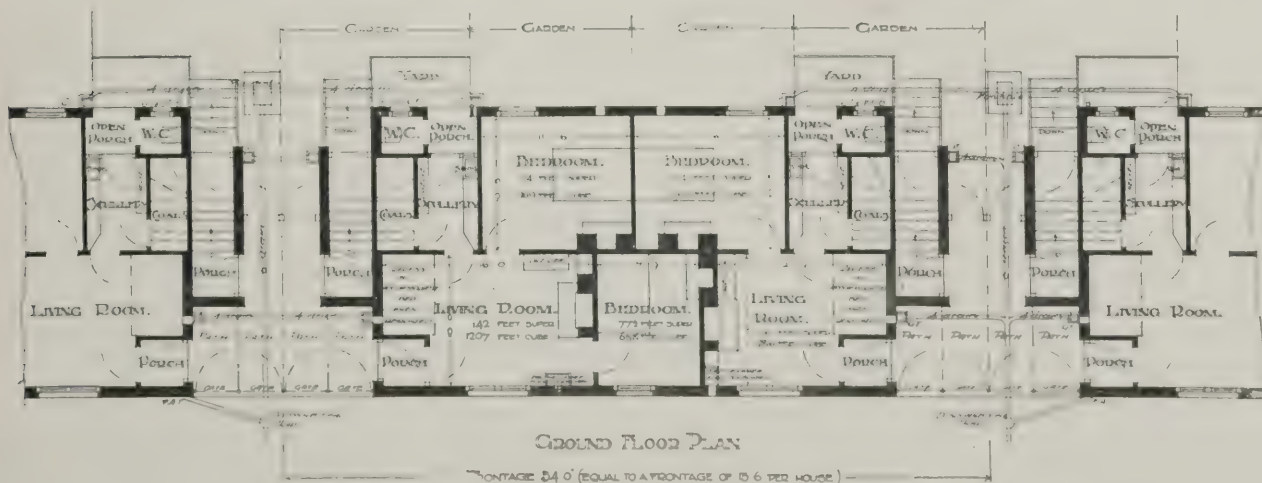
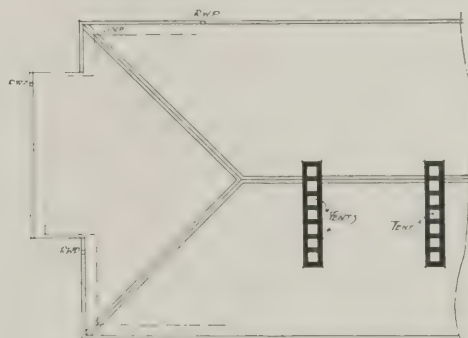
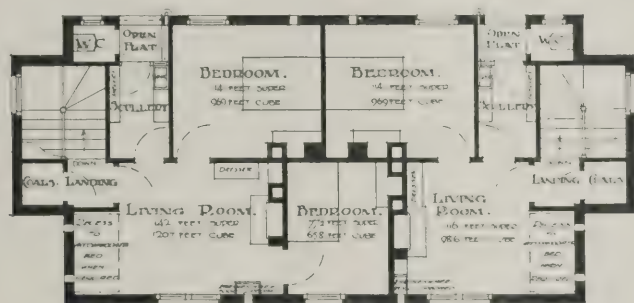
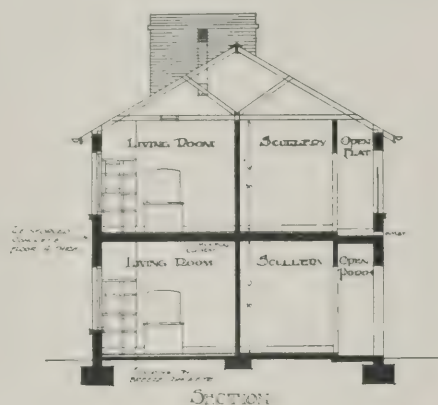
The following observations are extracted from the architects' own report:

"We have planned the houses of two types without affecting standardising of the sizes of windows, doors, and other fittings. One is a 'cottage' type, and the other a 'maisonnette' type.

"Although it was not specified, we have thought it needful to provide an ample scullery in every house, that dirty work need not be done within a living room. One side of the scullery is shelved for the accommodation of cooking utensils, etc.

"We think it better in houses of this class not to provide a large food cupboard, for such is inevitably used for the accommodation of articles other than food-stuffs, to the detriment of the latter, and we suggest instead a small earthenware food cupboard (costing about 12s., p.c.), with a perforated zinc door, and directly ventilated to the exterior. This is sanitary, and not large enough to be misused.

"Ventilation.—We suggest a simple system of ventilation through the ceiling, with inlet gratings at a high level on the walls. Ventilation flues are arranged between the ordinary flues opening into the roof space and delivering at the sides of the shafts, as indicated upon the sections.



FIRST-PREMIATED DESIGN FOR WORKING-CLASS HOUSES FOR THE BELFAST CORPORATION: MAISONNETTE TYPE.  
CHILLINGWORTH AND LEVIE, ARCHITECTS.

"Floor.—We show on the ground floors 4 in. of concrete, 2 in. of coke breeze concrete, and 1 in. tongued and grooved flooring, tarred on the underside, which we have found satisfactory on dry sites and which makes a vermin-proof floor.

"Maisonnettes.—These houses follow exactly the plan of the cottage type, except that accommodation is found for a staircase for the first floor tenants. Each block contains two tenements of two rooms, and, although a continuous row of houses is avoided by building in semi-detached blocks, the frontage works out at only 13 ft. 6 in. per house.

"In place of each tenant having a staircase, there are only two staircases to the block of four tenements, and the upper floor tenants reach their garden by a short flight of concrete steps from the mid-landing. By this arrangement every tenement has all its rooms on one floor—a considerable ease to the housewife.

"The upper floor to be in concrete 5 in. thick, reinforced with rib bars and floored on top with 1 in. grooved and tongued flooring. This will take a live load of 100 lb. per foot superficial, and although it costs more per square foot than a joisted floor, we find that when the cost of lathing and rendering the ceiling of a joisted floor, and the reduction of one course of brick all around the walls and partitions on account of the lessened thickness of the floor, is taken into consideration, there is very little difference, and a considerable advantage is gained by having a fire resisting floor.

Cost.

"The cubing is as follows.—Cottage type: 2 tenements, 10,624 cub. ft. at 4d., equal to £177.

"Maisonnette Type: 4 tenements, 21,001 cub. ft., at 4d., equal to £350 10s. 4d.

"Our scheme includes:

"Hemsworth Street Area.

"12 Cottages, at £180 ..... £2,160

"Boundary Street Area.

"27 Cottages, at £180 ..... 3,960

"4 Maisonnettes, at £352 ..... 1,408

"Gardiner Street Area.

"24 Cottages, at £280 ..... 4,320

"Hamil Street Area.

"30 Maisonnettes, at £352 ..... 10,560

"Total for 262 tenements..... £22,408

"We estimate, therefore, that the scheme could be carried through for the sum of £23,000, available for buildings.

"Construction.—The construction calls for no particular comment, as it is clearly shown on the drawings. The walls are

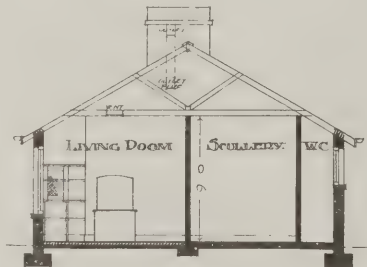
built of 9-in. brickwork, and the foundation of cement concrete and the roof is covered with slates."

THE HISTORY OF STREET PAVING.

At the last meeting of the Royal Technical College Architectural Craftsmen's Society, Glasgow, Mr. Peter Lyall delivered a lecture on "Paving." He said that several cities had paved streets before the Christian era; nevertheless, those cities which were at present the ornament of Europe (Rome excepted) were destitute of them till almost the twelfth and thirteenth centuries. The Carthaginians were the earliest roadmakers, and their example was copied by the Romans. Among modern cities the oldest pavement was commonly ascribed to Paris, but it was certain that Cordova was paved by the ninth century, and Paris about the twelfth century. Historians asserted that London was not paved in the eleventh century. The earliest paved causeway in Glasgow was down the centre of the Saltmarket, the sides being left in rough rubble. Candleriggs was done about 1776, and, with the exception of planestone in Tron-gate, all the other streets were covered with rough cobbles.

A LARGE CLOCK FOR HULL.

Messrs. William Potts and Sons, Ltd., clock manufacturers, of Leeds and New-castle-on-Tyne, are now engaged on the construction of a new large Cambridge quarter-chime clock for Holy Trinity Parish Church, Hull. This clock will show the time on four external skeleton dials 13 ft. 6 in. in diameter, and will strike the correct Westminster full four musical chimes and the hours, the latter on a large tenor bell weighing 26 cwt. Built from the designs and plans generally

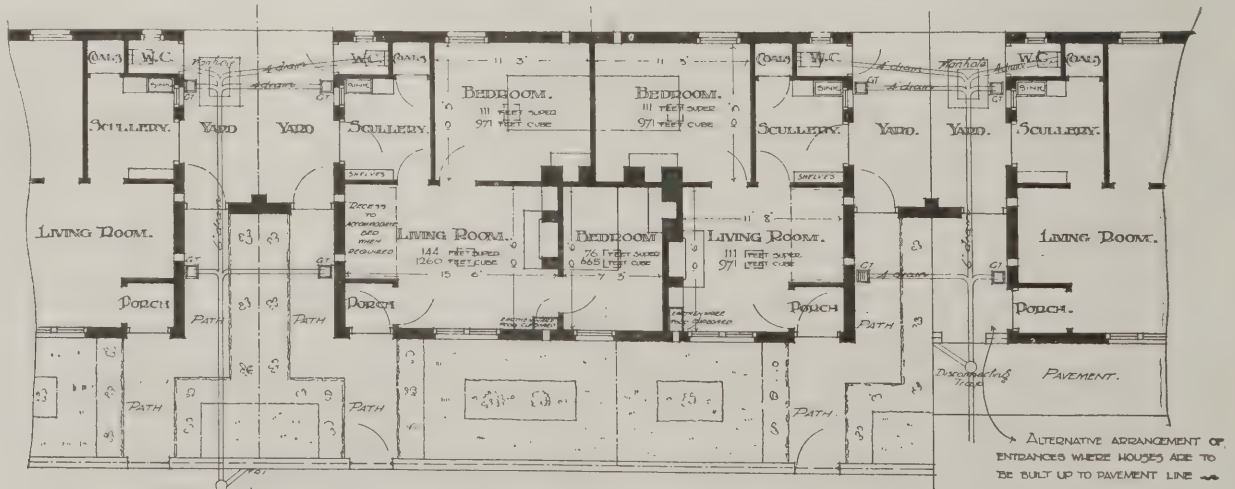


SECTION.

of the late Lord Grimthorpe, with his lordship's double three-legged gravity escapement, the clock is fitted on a horizontal solid cast-iron bed frame, planed perfectly flat. The wheels are of gun metal cut on the engine from the solid, and the pinions are of steel, hardened and tempered and similarly cut. The clock is fitted with Messrs. Potts's correct dropping apparatus for the striking parts.

LONDON'S NEW COUNTY HALL.

At last week's meeting of the London County Council, the Establishment Committee recommended that the tender of Messrs. Holland and Hannen and Cubitts, Ltd., amounting to £518,871, for the construction of the superstructure of section A of the new County Hall and the execution of the finishings to the substructure of the building and for the construction of the superstructure of sections B and C of the new County Hall on the schedule of prices contained in their tender for section A, be accepted. The Finance Committee reported that the revised estimate of the total cost to which the Council was committed in respect of the building was £1,930,000. Mr. Isidore Salmon, chairman of the Establishment Committee, said the tentative estimate given in 1908 was scarcely comparable with the estimate now presented, as the whole basis on which the estimate was framed had been altered. In 1908 the estimate was based upon the idea that the building would take five years to complete. Since then it had been thought desirable to accelerate the building. Consequently, in asking for tenders they requested builders to quote prices so that the building could be erected in three years. That meant a tremendous amount of overtime work. The cost of building materials had increased enormously, labour was considerably dearer, and they were faced with extra cost owing to the National Insurance Act. The delay had not been attributable to the committee or to any individual in the service of the Council, for everything possible had been done to accelerate the work. Mr. Edward Smith said that under the scheme, which was to cost two millions, and which excluded the building on Messrs. Holloway's site, accommodation was only provided for 2,100 officials. At present the Council's staff numbered 2,400, and by the time the new County Hall was built the total staff would be 2,700. After further discussion the committee's recommendation was carried unanimously.



GROUND FLOOR PLAN.

FIRST-PREMIATED DESIGN FOR WORKING-CLASS HOUSES FOR THE BELFAST CORPORATION: COTTAGE TYPE.

CHILLINGWORTH AND LEVIE, ARCHITECTS.



## COAL GAS FOR DOMESTIC PURPOSES.\*

BY F. W. GOODENOUGH.

THE natural evolution of fuel as generally used may, with no serious degree of inaccuracy, be described as being from air-dried wood, through artificially dried wood (charcoal), partially compressed but moist vegetable matter (ignite), to the fully compressed vegetable matter which we call coal, and thence, by artificial instead of natural means, to the very essence of coal in the form of gas—a word derived, we are told, from the Anglo-Saxon "gast" or the German "geist," each meaning spirit or ghost. In every stage, the gas volatilised in the process of combustion from the substance consumed has given the vital flame, and hence, therefore, we arrive at the stage of being able to buy the vital essence of coal encumbered by the grosser body in which it was imprisoned, surely we have it very near to the ideal fuel. That vital essence which we call gas is, moreover, as applied to the public, the purified essence of the crude coal.

*Purifying the Atmosphere.*

This means that when the essence of coal burned in our houses our chimneys emit to the atmosphere none of the tarry vapours that arise from the smoky fire, because at the gasworks from every ton of coal there have been extracted somewhere about ten gallons of tar, to be used, not for helping to defile the air, but, perhaps, for helping to keep it free from the dust of the country road. The absence of these tarry vapours from the atmosphere tends to reduce materially the risk of the formation of dense fog.

Again, the burning of the purified essence of coal instead of the crude article means that when the, say, 12,000 cubic feet of gas extracted from the ton of coal burned in our fireplaces and our kitchen ovens, instead of the 33½ lb. of sulphur at would be discharged into the air, were at quantity of coal burned in crude form, only half a pound of sulphur—not more than 1½ per cent. of the quantity originally in the coal—goes into the atmosphere, while 32½ per cent. remaining in the coke, whilst 66 per cent. is converted into valuable fertilising material to enrich our agricultural resources. It should be added, moreover, that the small percentage of sulphur which a gas fire discharges up its flue is only in the form of sulphur dioxide, without the addition of considerable quantities of sulphuretted hydrogen and ammonia, as is the case with the ordinary coal fire, which also emits such noxious products as formic aldehyde and carbon monoxide, unknown in the flue gases from a gas fire.

*Destructive Carbonaceous Matter.*

The destructive effect of the products of combustion in the case of gas fires, as compared with coal fires, is, therefore, not only less by reason of the enormously diminished quantity of sulphur, but also because the sulphur compounds emitted from the coal fire are, by reason of the presence of ammonia in company with the sulphur, more destructive in their action than in the case of sulphur dioxide, unaccompanied by sulphuretted hydrogen and ammonia.

Moreover, if we use the essence of coal instead of the crude substance in our fire-

places, we discharge into the air no unconsumed carbon, as we do in such large quantities when we carry on our carbonisation of the coal in an open grate instead of in a closed retort.

Observations recently carried out by the Coal Smoke Abatement Society showed that no less than 61,000 tons of solid matter is deposited annually on every square mile in the City of London, and that a very large proportion of this is wasted carbonaceous matter which has its origin mainly in the domestic coal fire and kitchen grate.

One side of the economic aspect of smoke-laden air as compared with the clean atmosphere is the damage wrought upon our public buildings by the action of a sulphurous atmosphere. Another is the heavy cost of cleaning all white and light-coloured fabrics, which so much more rapidly become discoloured in the smoke-laden atmosphere of a town than in the undefiled air of the country.

It is, of course, a fact that the intensity and duration of fogs in London have diminished materially in recent years owing to the rapid displacement of coal as a fuel by its purified essence. In the twenty years from 1891 to 1911 the number of gas-heating, cooking, and hot-water appliances sold, hired, or loaned to their consumers by the Metropolitan and suburban gas companies increased from 46,000 to 1,404,000. In the year 1912 the number increased by at least another 100,000, and the process still goes rapidly on.

*The "Lancet" Commission.*

The case for gaseous fuel on the side of comfort and convenience was summarised effectively twenty years ago by the Special Analytical Commission which was appointed by the "Lancet" to report upon "Smoke Prevention and Perfect Combustion." In the report of that Commission, which has become a classic on the hygiene of gas-heating, and to which all who have the smoke abatement movement at heart owe a very substantial debt of gratitude, the advantages of gas over coal fires are thus referred to: "None will deny the convenience of such a system. With gas a bright fire can be obtained at any moment, night or day. The heat can be regulated to a degree, the fire can be stopped at will, conveyance of coals dispensed with, and the oftentimes troublesome process of lighting with wood and paper is avoided, while cleanliness is an inevitable result of a gas installation."

The report proceeded to touch upon the question of economy by adding that, "at first sight it would appear that gas as a fuel compares unfavourably with coal in regard to cost, but when all the features—cleanliness, convenience, and manipulative advantages are taken into account; when the pros and cons are considered in minute detail, it is probable that gas used rationally runs coal very closely even on the score of expense."

*The Hygienic Value of Gas.*

The examiners of the Coal Smoke Abatement Society express the opinion that a properly constructed gas fire has the advantages of a coal fire from a hygienic point of view, owing to the more equable temperature and the absence of dust and smoke. The essence of their conclusions

is, in short, found in these words: "A properly constructed gas stove, with a flue sufficiently large to carry away the products of combustion, although for constant use more costly than a coal fire, is quite as satisfactory from a hygienic point of view and does not in any way vitiate the air of a room, nor does it produce any abnormal drying effect, as is popularly supposed. It will carry off from 2,000 to 4,000 cubic feet of air per hour, and this is a valuable ventilating effect," but one, be it noted, that does not entail the cutting draughts caused by a blazing coal fire.

It is true that this ventilating power of a gas fire is sometimes described as "consuming the oxygen in the room," but as that applies with equal or greater force to the coal fire, and would only mean anything if we shut ourselves up in air-tight compartments, I think everyone will regard the flue draught from a gas fire in the same light as the doctors from whose report I have been quoting, namely, as "a valuable ventilating effect."

This brings us directly to the consideration of the very important question so often either asked or reserved as a doubt militating against the smoke abatement movement: Can gas be used in place of coal without disadvantage from the hygienic point of view? There can be no doubt, as a result of the research that has been carried out on this question, and, indeed, from a common-sense consideration of the matter, that gas fires not only have no hygienic disadvantages over coal fires, but, on the contrary, have a marked superiority in that respect. Here I am speaking, be it noted, of the gas fire as constructed, fitted, and maintained to-day. The public prejudice against gas fires, as being smelly, costly, and horribly ugly pieces of domestic furniture had no little ground in bygone days, and has grounds still where fires of old design have been badly fitted and worse looked after.

*Essential Conditions in Gas Fire Construction.*

Having referred at some length to the use of gas for heating purposes, the lecturer said that the practical testimony of the doctors of to-day is fully bearing out the pronouncement of the "Lancet" Commission, to the effect that "gas can be used for warming purposes efficiently without prejudice to health, provided that certain conditions are strictly adhered to."

It is interesting to note those conditions and to see how completely they have been embodied in the modern gas fire. The conditions laid down were: (1) That it is desirable that the stove should afford radiant heat only. (2) That for this purpose some form of clay fuel should be used. (3) That attention should be given to the packing of the fuel so as to avoid undue clogging or impeding of the flow of the flames. (4) That the stove should be supplied with separate burners with taps. (This has been adopted only partially, it being found unnecessary to control each burner independently, it being sufficient to be able to control sections of the burners.) (5) That some means of controlling the supplies should be adopted. Governors or regulators are indicated. (This condition is met in the present day by the recommendation given to their consumers by most gas undertakings to have governors

\*Extracts from a lecture given on March 3rd before the Royal Society of Arts.



fixed on all gas fires installed.) (6) That a simple arrangement should be provided by which undue drying of the warm air may be avoided. This condition, the report stated, appears to be necessary. (Subsequent research and experience has proved that it is unnecessary, as the modern fire does not unduly warm the air.) (7) That indestructible enamel should be used for covering the stove. Common paint, varnish, or ordinary enamel should be avoided. (This is invariably done.) (8) That an efficient flue should in all cases be provided. (9) That the burner should be as far as possible noiseless. This last condition is fulfilled to a very great extent in all modern gas fires, though absolute silence is not always achieved.

### LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.

At last week's meeting of the above society (the President, Colonel A. E. Kirk, A.R.I.B.A., in the chair) Mr. Wm. Black, of the Trussed Concrete Steel Company (Kahn system), read a paper on "Standards in Reinforced Concrete Design." The lecturer went into great detail, and showed methods of calculating and designing concrete beams, columns, etc., illustrating his remarks by diagrams and sketches. A number of lantern slides showing works completed or in course of construction were also shown. Mr. Black did not advocate the building of external walls completely in concrete, but said that the method to adopt was to build up a framework of concrete lintels and piers, and to fill in the interspaces with brick, stone, terra cotta, etc.

### SOUTH WALES INSTITUTE OF ARCHITECTS.

At a meeting of the South Wales Institute of Architects (Mr. G. E. Halliday, F.R.I.B.A., president of the institute, in the chair) Mr. St. John Hancock, honorary consulting architect to the Welsh Housing Association, delivered a lecture dealing with the housing problem in Wales. Mr. Hancock pointed out that the population had increased faster than the dwellings, thereby creating a housing problem quite apart from that due to the miserable condition of many that did exist. The problem before the architects was to keep pace with the present and coming needs of 8,500 new dwellings a year. Could they as architects provide a workman's dwelling, apart from the builder's profit and professional charges, for a sum of £150, so as to make workmen's dwellings profitable as an enterprise to all concerned? That appeared to be the problem they had to solve if they were to provide a suitable dwelling to be let at 7s. a week, including rates, to a tenant in fairly regular employment whose weekly wage was two guineas. The executive of the Welsh Housing Association had before them facts and considerations that led them to think even this problem was not hopeless.

St. Mary's, an old-time residence well known to antiquarians, in the little Sussex village of Bramber, has come into the market. It is a notable example of Early English domestic architecture, the older portion of the building, with its black and white work, its stone mullions, lead lights, and Horsham slab roof, being especially interesting. It is to be offered for sale, at the Mart, by Messrs. Harrods, Ltd., early in April.

## NEWS ITEMS.

### Garden Suburb Fire.

A fire occurred at the Hampstead Garden Suburb Institute last week. The annex, which is used for meetings, was almost totally destroyed, while the main building was damaged.

### Blackburn Town Hall.

We are informed that the whole of the fibrous plaster decorations for Blackburn Town Hall have been placed in the hands of John Tanner and Son, of Westminster and Liverpool. The architects are Messrs. Briggs, Wolstenholme, and Thornely, and Stones, Stones, and Atkinson.

### Waterproofing on Large Estates.

We are informed that one of the latest orders received for Pudlo is from the Marquis of Londonderry and that this waterproofing powder is now being used on many large estates for the prevention of damp in stokeholes, garage pits, walls, etc. The makers are Messrs. Kerner- Greenwood and Co., King's Lynn.

### City Surveyor's Fatal Fall.

Mr. S. A. Stanger, quantity surveyor, of Finsbury Pavement, died in St. Bartholomew's Hospital last week as the result of injuries received in a fall from the roof of the River Plate House in the City. Mr. Stanger was surveying the roof of the premises when he fell over the parapet into the area at the back of the building. He died a few hours after his admission to the hospital. Mr. Stanger was fifty years of age, and was well known in his profession. When the Tower Bridge was built he was the quantity surveyor, and he had been engaged in the erection of many public buildings. He was a prominent Freemason.

### Royal Honour to Carron Company.

The Carron Company have received the following communication from Col. Douglas Dawson, Comptroller, Lord Chamberlain's Office, St. James's Palace: "I am desired by the Lord Chamberlain to inform you that the King has been graciously pleased to grant you a warrant of appointment as grate manufacturers to His Majesty." It is believed that this honour is without precedent in the ironfounding industry. The Carron Works have been visited on many occasions by royal personages, including His late Majesty King Edward VII., when Prince of Wales, Czar Nicholas I. of Russia, and Prince Leopold Maximilian of Austria.

This old-established firm, whose record extends for over a century and a half, have supplied a large number of their high-class fire-grates to Holyrood, St. James's, and other royal palaces.

### Prudential Assurance Company, Ltd.

From the sixty-fourth annual report, for the year ending December 31st, 1912, it appears that the number of policies issued by the Prudential Assurance Company, Ltd., during the year was 59,854, assuring the sum of £5,586,153, and producing a new annual premium income of £346,592. The premiums received during the year were £4,826,993, being an increase of £14,725 over the year 1911. In addition, £5,893 was received in premiums under the new sickness insurance tables. The assets of the company, in both branches, as shown in the balance sheet, are £84,571,932, being an increase of £3,332,250 over those of 1911. In the Ordinary Branch, the surplus shown is

£1,901,315, and out of this £350,000 has been added to the investments reserve fund, which thus stands at £850,000.

### Waterproofing Materials.

On page 208 of our issue of February 19th, under the heading "Specification for Rough-cast," it is recommended that "extreme weather-resisting qualities are desired in an exposed position, a small proportion of one of the new waterproofing additions should be included with the cement." Certain proportions were then suggested by the writer, but Messrs. T. British Ceresit Waterproofing Company, Ltd., 68, Victoria Street, S.W., write to say that these do not refer to Ceresit which is supplied in the form of a paste. This paste having been dissolved in water the whole bulk of sand and cement is mixed with it.

## COMING EVENTS.

### Wednesday, March 12.

- Northern Architectural Association.—Annual Meeting and Exhibition of Students' work, at 7.30 p.m.
- Edinburgh Architectural Association.—Lecture by the Rev. Professor James Cooper (subject not announced), at 8 p.m.
- Royal Sanitary Institute.—Lecture by Mr. Alan E. Munby, M.A., F.R.I.B.A., on "Ventilation, Warming, and Lighting," at 7 p.m.
- Manchester Society of Architects.—Lecture by Mr. Leslie Wilkinson (subject not announced).
- Royal Society of Arts.—Mr. Noel Heat on "The Use of White Lead in Painting," at 8 p.m.

### Thursday, March 13.

- Concrete Institute.—Mr. H. C. Johnson on "The Strength of Cement," at 7.30 p.m.
- Sheffield Society of Architects and Surveyors.—Mr. J. R. Wigfull on "The Churches of Caen and Neighbourhood."
- Society of Architects.—Mr. Noel D. Sheffield on "Wallpapers," at 8 p.m.

### Friday, March 14.

- Leicester and Leicestershire Society of Architects.—Mr. Francis Morley, A.R.I.B.A., on "A Study in Local Town Planning," and Mr. N. J. Robertson, A.R.I.B.A., on "Leicestershire Bricks and Brickwork—Old and New," at 8 p.m.
- Architects' Benevolent Society.—Annual General Meeting, R.I.B.A., at 5 p.m.

### Saturday, March 15.

- Edinburgh Architectural Association.—Visits to the Usher Hall and the Edinburgh College of Art.

### Monday, March 17.

- Institute of Sanitary Engineers.—Dr. S. C. Lawrence on "The Dwelling House," at 8 p.m.
- Liverpool Architectural Society.—Mr. James Powell on "Painted Glass Relation to Architecture."

### Wednesday, March 19.

- Edinburgh Architectural Association.—Mr. Geo. W. Tulley on "Drainage (Associates' Paper)."



# THE ARCHITECTS' & BUILDERS' JOURNAL.

Wednesday, March 19, 1913.

Volume XXXVII. No. 949.

No. 25.



(From Piranesi.)



PALAIS DE JUSTICE, BRUSSELS: DETAIL OF FACADE, RUE AUX LARNES.

J. POELAERT, ARCHITECT.



# THE ARCHITECTS' & BUILDERS' JOURNAL.

MARCH 19, 1913.

CAXTON HOUSE, WESTMINSTER.

VOLUME 37. No. 949.

## The L.G.B. and the Municipal Ownership of Land.

THE refusal of the Local Government Board to hold an inquiry into the merits of the proposed purchase of a large estate by the Birkenhead Corporation has demonstrated with sharp exactitude the position of English towns to-day with regard to the acquisition of property. Though so far no explanation has been given, it is to be presumed that this action means that there can be no inquiry into the particular merits of this transaction, seeing that the essential policy is untenable.

The facts of the Birkenhead case are briefly as follows:—Sir William Lever having purchased an estate of some 1,500 acres just outside the boundary of Birkenhead, offered to resell it to the Corporation at the same price that he paid for it—namely, about £90 per acre. The only obligation which this purchase carried with it was that the Corporation should complete and pay the full cost of a road which had already been begun, and which would form a main artery opening up the estate. The land was practically built upon, having been artificially held up as a shooting preserve by a wealthy shipowner. Property contiguous to the Birkenhead end of the estate was at present in process of development, and the price charged for land was at least £600 per acre; part of the estate was as well situated as this, but a considerable amount was not quite so attractive. The Town Council accepted Sir William Lever's offer, and applied to the Local Government Board for power to borrow the purchase money; in the meantime, as was to be anticipated, in view of the novelty in this country of municipal land purchase on so large a scale, a great deal of opposition was aroused among the ratepayers. The merits and demerits of the case were discussed in the local Press with a keenness and vigour that showed an intense interest, but frequently a lamentable lack of knowledge, on the part of the citizens. Every one locally was looking forward to a public inquiry when before an impartial inspector the merits and advantages of this particular case would be upheld by the authorities, and challenged by the group of individuals who, under able leadership, had conducted a campaign of opposition; the case was also being watched throughout the country by all keen students of municipal matters and town planning.

The inability of the Local Government Board to hold an inquiry can only mean that, according to the present state of municipal law, it is only possible to purchase land for a specific purpose, such as for a park or cemetery, or site of a public building; whereas to buy land because it happens to be going cheap is outside a town's powers. Although it is to be presumed that Birkenhead had a pretty clear idea as to how they would develop this estate and had probably prepared a tentative plan, yet they certainly could not definitely say for what purpose they intended to apply each acre; they could show no immediate need, in fact, for more than perhaps 100 acres or so. This means that the possession of income-bearing land is denied to English towns which do not already possess such pro-

perty, and that this phase of municipal trading enterprise is debarred.

Into the particular merits of this Birkenhead case, therefore, it is not profitable to inquire, seeing that the proposed purchase has not been quashed on its merits, but on the principle. But in view of the black pessimism of the outlook of the local opponents of the purchase, who maintained that, though a private owner might just conceivably make the developed estate pay, a municipality would certainly lose on it, it is interesting to look at a modern German example where a town has purchased land recently and has not lost by it. It is naturally unfair to instance a town like Liverpool for successful municipal ownership on the score of the £80,000 a year or so which the corporate estate yields, seeing that its citizens became possessed of the property by the nice policy of enclosing a vacant heath while the noble families of the neighbourhood were away cutting each other's throats in the Wars of the Roses. But the town of Ulm, in South Germany, has become possessed of its property comparatively recently, and it has had to buy it in the open market. At present Ulm owns rather more than three-fifths of the whole land within the municipal boundary, and it also possesses property outside its area of nearly twice the extent of the estate which Birkenhead proposed to buy: the population of Birkenhead is 130,000, and of Ulm about 30,000. By the resale of not quite one-sixth of the land which the Council bought since 1891, Ulm has recovered nine-tenths of all that it expended on the purchase of its property. There is no doubt that German municipal affairs are conducted with great skill, and that the appointment of their chief magistrates for a long period of years gives a continuity of policy which is difficult of attainment with us; but, for all that, one can hardly think that our English Municipal representatives are so immeasurably inferior to theirs in general business ability. That they are not behind them in courage is proved by the acceptance by the Birkenhead Corporation of Sir William Lever's offer, and their adherence to the decision in spite of a considerable body of opposition.

Perhaps the most important issue which this proposed purchase has raised is a comparison between the advantage of a town-planning scheme under the Act of 1909 and the municipal ownership of the same area. This particular estate happened to be actually included in a town-planning scheme, and the opponents of purchase urged that all necessary amenities might be secured in this way. The controversy is an exceedingly intricate and also a hypothetical one, owing to the newness of the Town-planning Act. But if one were to attempt to sum the matter up in one rough generalisation, it might be said that the effect of a town-planning scheme is restrictive, whereas the development of a municipally owned area could be also constructive. As regards main traffic routes, indeed, a scheme under the Act can be as constructive as need be; and if these are secured, the whole end and object of town-planning has been attained in the



eyes of many people. But in reality this is merely a single phase of the subject: the sociologist, for example, is equally interested in the distribution and housing of the population. Now under a town-planning scheme it is possible to prevent certain abuses in the nature of overcrowding of buildings, but it is quite impossible to coerce an owner into building houses or selling his land for houses for certain definite classes.

In a word, town-planning can do much, but municipal land ownership more. They should proceed wherever possible hand in hand. There should certainly be no legal disability in the way of municipal land purchase.

P. A.

#### The Future Regent Street.

WE publish in full in this issue the report of the Government committee who have been considering the problem of the rebuilding of Regent Street Quadrant. All the points involved are admirably set out in this report, and we do not propose to waste space by restating any of them here. But we desire to make one or two comments on the decisions arrived at by the committee. The main recommendation is to leave the Piccadilly Hotel as it is and to treat the portions on either side as lower wing buildings, carrying on Mr. Norman Shaw's general treatment, but substituting rectangular openings for the arcades. The initial mistake was made by ever allowing such a design to be carried out in the Quadrant, but we can quite appreciate the difficulty which the committee found themselves confronted with—either to recommend the pulling down of the new façade or to make some sort of compromise. They chose the latter alternative, regrettably we think; for, in our opinion, the continuation of Mr. Shaw's design, even though modified, will never be so satisfactory as Nash's treatment. The committee's recommendation as to rectangular openings frankly means that they do not approve the arcaded treatment which shopkeepers have very rightly protested against. What the ultimate result will look like, time alone can tell, but we fear that the skyline especially, with its interminable chimney stacks, will be a sorry spectacle.

#### The Small Suburban House Competition.

THE date of this issue is the last day for receiving designs in our competition for plans and section of a semi-detached house suited to the needs of the small suburban household. At the time of writing we have received nearly one hundred designs, but as we go to press on Monday, the final total will doubtless be considerably more than this number. At the moment we cannot state definitely when the awards will be announced, but the competition will be assessed immediately, and it is probable that the results will be given in our issue for April 9th.

#### Land Valuation Legerdemain.

ALTHOUGH Mr. Royds's amendment to the Address to the Speech from the Throne was defeated by a majority of ninety-one votes, this is by no means the measure of its moral effect on the House, still less of the strength of its outside appeal. Many members of that mechanical majority are "given furiously to think" on the newest methods of land valuation, and their real convictions on the subject will no doubt find influential expression. The instances of the monstrously unfair incidence of the Act brought forward by Mr. Royds made an excellent opening for Mr. Fitzroy's subsequent declaration that the tax is being imposed contrary to the intentions of Parliament and contrary to the wishes of ninety-nine out of every 100 members of the House—a statement that, for party

purposes, the Government spokesman, Mr. Masterman, was, of course, compelled to deny. He tried to show that the House must have known what the effect of the Act would be as demonstrated in the Lumsden case. It is a gratuitous but not altogether an unpardonable assumption, as coming from one who found himself in a tight corner; but party emergencies may not excuse his more emphatic statement that, "so far from acting contrary to the law, the Inland Revenue authorities had been merely acting according to the plain statement of the case on the Budget and the intentions of Parliament when the Budget was passed." If this is so, the Chancellor of the Exchequer must have known it when, just before the general election, he assured Mr. Samuel Smethurst, who was then president of the National Federation of Building Trades Employers, that it was only proposed to levy increment value duty where there was an increase in the value of the land itself, due not to the action of the owner, but to the action of the community; and Mr. Masterman has served him an ill turn in so completely cutting off his retreat. We had hoped that the Chancellor would stand by his pledges—would have had no hesitation in saying that the Act had gone beyond his intention. Now, thanks to Mr. Masterman, it remains for Mr. Lloyd George to explain why he has said one thing and has done the opposite. So far, his apologists have done nothing but chop logic and juggle with terms; but subterfuge merely serves to intensify just indignation. The plain fact is that, both directly and indirectly, and whether wantonly or carelessly, the Act as interpreted in the Lumsden case inflicts a cruel injustice on the building industry, and, through it, on business activity generally, and, further still, on the general welfare of the community. The evil consequences of penalising enterprise are indeed far-reaching beyond foresight, and an Act entailing so long a train of evil consequences must be immediately amended.

#### A Meanly Conceived Competition.

AT intervals, for years past, we have taken occasion to insist on three main points with respect to the elementary schools that must perforce either adorn or disfigure our towns—(1) that, being conspicuous, they ought to be comely; (2) that, being distributed about the town, they are peculiarly apt to become tiresome by reiteration; and that (3) they ought therefore to be rendered tolerable by showing a pleasing diversity of design, which cannot be expected when they are all designed in the same official factory. Clearly a means of avoiding monotony is to give outside architects an opportunity of designing schools. In this connection we note that the Education Committee of the London County Council recommends the holding of an open competition for designs for two public elementary schools, one at Greenwich and the other at Battersea, the avowed object being to ascertain "the possibility of effecting economies in the cost of schools by modifications of design and materials used in construction." One could wish that they had been inspired by a loftier conception. Sheer utilitarianism has suggested the experiment; but it affords an opportunity of showing that mean motives may sometimes be turned to better issues, for it does not necessarily follow that a less expensive type of school shall be inevitably less architectural. The outlook, however, is inauspicious seeing that the Education Committee do not intend to offer any premiums in the proposed competition. This meanness is not only bad in itself—it sets a bad example; and the grudging tone in which reference is made to the thirty guineas to be paid to an assessor would be laughable if it were not so contemptible. A good many architects, it may well be imagined, will refrain from competing, lest the timorous spirit of the promoters should creep into their designs.



## THE REPORT ON REGENT STREET QUADRANT.

THE report of the committee which was appointed by the Government in September, 1912, "to consider the design for completing the rebuilding of the Quadrant, Regent Street, 'due regard being had to (a) æsthetic considerations, (b) commercial requirements, and (c) the interests of the Land Revenues of the Crown,'" was issued last week by His Majesty's Stationery Office (Wyman and Sons, Ltd., Fetter Lane, E.C., and 32, Abingdon Street, S.W.). It is signed by the Earl of Plymouth, Sir Henry Tanner, Professor Reginald Blomfield, and Mr. John Murray, and is as follows:—

The committee invited evidence from Mr. Frederick Hellard, on behalf of the Department of Woods and Forests, from traders doing business in the Quadrant and from distinguished architects. The following traders were represented:—

Swan and Edgar, Ltd., by Mr. W. Morford; Messrs. Charles Packer and Co., by Mr. W. M. Birt; Hope Brothers, Ltd., by Mr. W. W. Greenslade; The Café Royal, Ltd., by Mr. A. Judah; Lichtenfeld Brothers, Ltd., by Mr. S. Lichtenfeld; Simpson and London, Ltd., by Mr. A. H. Linden.

The following architects gave evidence:—Sir Thomas Graham Jackson, Bart., R.A., Sir Aston Webb, C.B., C.V.O., R.A., Mr. Ernest Newton, A.R.A., Mr. H. V. Lanchester, F.R.I.B.A., Mr. W. Flockhart, F.R.I.B.A., Mr. W. E. Riley, F.R.I.B.A., M.I.C.E., representing the London County Council.

The evidence given by witnesses representing the traders was by no means unanimous. Mr. Morford, representing Swan and Edgar, Ltd., stated his opinion that the present or any similar design was "impossible for a commercial building," on the ground that it obstructed the free access of light, wasted space, and gave quite inadequate shop windows. For the purposes of their trade and for shop-dressing he wanted all the glass possible, and windows from twenty to sixty feet between visible points of support. In regard to the roof line he wished the present roof line continued the full height of the Piccadilly Hotel in order that his company might get all the space possible. He wished the columnar and recessed treatment of the hotel façade to be abandoned and a simpler and less costly design adopted.

Mr. Birt, representing Messrs. Charles Packer and Co., agreed as to the glass with the last witness, but did not want so high a building, nor did he want the mezzanine floor of the Piccadilly Hotel.

Mr. Greenslade, representing Hope Brothers, Ltd., stated that the hotel design would be fatal to their business. His company desired a minimum of forty feet of glass between piers, but would prefer sixty. They would not want the mezzanine or the upper part of the building, and were opposed to the high sky-line of the hotel as making the street too dark. In the opinion of this witness, 95 per cent. of the traders in the Quadrant would prefer a lower building.

Mr. Judah, representing the Café Royal, Ltd., objected to the heaviness of the design, and wanted a lower building.

Mr. Lichtenfeld, representing Lichtenfeld Brothers, Ltd., stated that his company's trade suffered from the great height of the hotel opposite their premises, and attached great importance to a continuous shop window, so that anyone going along the street could see from one shop to another without having the view interrupted by piers.

Mr. Linden, representing Simpson and London, Ltd., also preferred a lower building as making the street more cheerful and attractive.

It appears from this summary of the evidence that the traders represented, with the exception of Swan

and Edgar, Ltd., desire a building of less height than the Piccadilly Hotel. Certain of the traders (Swan and Edgar, Ltd., Messrs. Packer, and Hope Brothers, Ltd.) attach capital importance to as wide and uninterrupted an expanse of glass as possible, on the ground that for their particular businesses a great display of goods is essential, and that by means of this they look to catch the custom of people promenading in Regent Street.

The other traders did not insist on this point. The traders were unanimous in desiring (1) the omission of the columnar treatment with recessed façade above the mezzanine, (2) the alteration of the arcaded treatment of the ground floor and mezzanine of the hotel design, (3) a simpler and less expensive design than that of Mr. Shaw. Witnesses also regretted the substitution of Portland stone for the painted stucco of Nash's design, on the ground that the stone was less easily cleaned and much more absorbent of light than the stucco.

The architects were invited to give their views on the points raised by the traders, viz. (1) the desirability of a high or low sky-line and its probable effect on the street, (2) the possibility of attaining any satisfactory architectural result with an expanse of glass of from 40 to 60 ft. between the piers, having regard to the necessity of a treatment harmonising with that of the Piccadilly Hotel and the importance of Regent Street as one of the principal thoroughfares of London, (3) possible modifications of the design to meet the requirements of traders.

In regard to the sky-line, Sir Aston Webb was in favour of continuing the roof line of the hotel the full height all along. Sir Thomas Jackson, Mr. Newton, Mr. Lanchester, Mr. Flockhart, and Mr. Riley were in favour of lowering it to right and left of the hotel if it could be done satisfactorily in order to keep as much light in the street as possible and to obtain a better proportion of the street in relation to its width. The architects were unanimous in their opinion that it is vital to continue the line of the main cornice and of the string course above the mezzanine floor of the hotel façade.

In regard to the question of expanse of glass between the piers the architects were unanimous in holding that if the design for the rest of the Quadrant is to harmonise with the design of the Piccadilly Hotel, any such expanse of glass as from 40 to 60 ft. between the visible points of support is out of the question. Sir Thomas Jackson urged that if any such treatment were adopted it would be necessary to carry the glass and iron treatment right up the façade. Sir Aston Webb mentioned that Mr. Shaw had, in fact, prepared a glass and iron design, but this had been deliberately set aside, and, in witness's opinion, an expanse of from 40 to 60 ft. of continuous glass on the curve of the Quadrant would give an intolerable effect. Mr. Newton pointed out that the requirements of future tenants might not be all alike, and that it was by no means proved that this great expanse of glass was necessary even for the purpose of a draper's business, having regard to the fact that two of the latest modern buildings specially built for this trade had window spaces of only about 18 ft., with piers of from 3 ft. 8 in. to 7 ft. 2 in. in width; and that whereas the tenants might change or their views as to what was necessary for their trade might alter, the buildings would be permanent.

Mr. Lanchester thought that a span of 36 ft. was possible, provided the façade of the mezzanine floor above the ground floor was treated as a girder and all columns or pilasters over it were omitted. Mr. Flockhart considered expanses of 40 to 60 ft. of glass abso-





REGENT STREET QUADRANT IN THE 'NINETIES.

lutely impossible if the character of the hotel design was to be preserved. Mr. Riley drew attention to the measurements of the shop fronts and piers in the new buildings erected for Messrs. Selfridge and Messrs. Waring and Gillow in Oxford Street, Messrs. Gorrings in Buckingham Palace Road, and Messrs. Burberry in the Haymarket, and pointed out that the width of the fronts of the shops beneath the Piccadilly Hotel could not by comparison be regarded as exceptionally small. In regard to possible modification of the design, subject to the condition that the lines of the main cornice and of the string course above the mezzanine are preserved, the architects considered that the columnar treatment of the hotel might be abandoned in the continuations on either side, and a simpler treatment adopted, but that the general character of Mr. Shaw's design for the hotel should be treated with respect, and should not be altered by the introduction of motives alien to it in style and detail.

It appears from this summary that, in the opinion of the architects who attended to give evidence, such drastic alterations as have been urged by several of the traders are, in their entirety, impossible, having regard to those æsthetic considerations which the committee have to bear in mind. It has, however, to be remembered that the traders have from the first protested against Mr. Shaw's design as unsuitable for their purpose, and the land revenues of the Crown are likely to suffer if conditions are imposed on the traders which render it impossible for them to carry on their trade with any reasonable profit. As against this there is another element in the problem to be considered in the case of a thoroughfare so important as Regent Street, and that is the interest of the public, the widespread feeling that the claims of civic architecture should be taken into account, and should not be wholly sacrificed to commercial requirements. After careful consideration of the evidence the committee have come to the conclusion that certain modifications in the original design for the Quadrant should be made, provided that such alterations do not stultify that part of Mr. Shaw's design already executed, and that they can be carried out consistently with a satisfactory architectural treatment of the Quadrant as a whole, in which

the Piccadilly Hotel will take its place as the predominant feature of the composition.

Various designs for the rebuilding of the Quadrant have been sent to the committee. In the opinion of the committee none of them are satisfactory or meet the conditions of the problem.

The committee make the following recommendations for the design for completing the rebuilding of the Quadrant:—

(1) The façade of the Piccadilly Hotel should be treated as the centre of a symmetrical composition, with façades of a simpler character on either side, terminating at the Circus and before Vigo Street and repeating the motive of the hotel design.

(2) In regard to the question of sky-line the committee were impressed by the evidence of the majority of the witnesses in favour of lowering it, but, after careful consideration of the question, the committee find that, owing to the height of the roof of the hotel and the narrowness on face of the pavilions the difficulty of designing any satisfactory addition to those pavilions such as would stop the roof and enable it to continue at a lower level is, in their opinion, insuperable.

The committee, therefore, recommend that the roof of the hotel should be continued in the new buildings, but that the design of the upper range of dormers and of the chimneys should be modified in order to reduce the obstruction of light.

(3) In the intermediate façades (that is, in the new buildings extending from either end of the hotel up to the pavilions suggested above) the following modifications should be made in Mr. Shaw's design (provided always that the lines of the main cornice and of the string-course above the mezzanine are adhered to):—

- (a) The columnar recessed treatment of the storeys between the mezzanine and the entablature of the hotel should be omitted and a simple flat treatment without columns substituted for it.
- (b) The arcades of the ground and mezzanine floors of the hotel should be omitted and rectangular openings formed for the shop windows and mezzanine, the span between the piers should





*Supplement to THE ARCHITECTS' AND BUILDERS' JOURNAL, Wednesday, March 19th, 1913.*







GLAMORGAN COUNTY HALL, CATHAYS PARK, CARDIFF: DETAIL OF FAÇADE.

E. VINCENT HARRIS AND THOMAS A. MOODIE, A.A.R.I.B.A., ARCHITECTS.





not exceed about 25 ft., the shop fronts should be kept back not less than 12 in. from the faces of the piers, but they may project in the form of bays to a line three inches back from the faces of the piers. The piers should be of sufficient width to meet architectural requirements and to ensure harmony in scale with the design of the hotel, and the faces of the piers should be kept free of all obstructions excepting small unglazed tablets of uniform size and position.

(4) The bay at the north-west end of the hotel should be altered so that the new intermediate façades begin immediately to the right and left of the existing hotel pavilions.

(5) The end pavilions should repeat the motive of the hotel, and the general character of the design of the intermediate façades should follow that of the hotel; that is to say, no manner alien to that design should be introduced such as Neo-Greek, Nash's Classic, or modern French Classic.

(6) The design so modified and simplified should be adopted for the north side of the Quadrant, with pavilions at the ends, but omitting the hotel design in the centre.

(7) The façades of the County Fire Office and the block of buildings facing Piccadilly Circus and Piccadilly should be in harmony with the design of the Quadrant.

(8) No erections above the ridges of the roofs that would be visible from Regent Street should be permitted except chimneys.

(9) The blocking course and the row of stone dormer windows over the cornice should be continued throughout the Quadrant, and the back wall enclosing at least the two top storeys of the new buildings should be kept parallel to the front wall and be treated with due regard to architectural requirements.

## OUR PLATE.

WE reproduce as the Centre Plate in this issue a detail view of the façade of the Glamorgan County Hall (of which Messrs. E. Vincent Harris and Thomas A. Moodie, A.A.R.I.B.A., of London, are the architects), showing the fine range of coupled Corinthian columns. It is an excellent piece of design, the architectural effect being enriched by groups of sculpture by Mr. Albert Hodge, symbolising "Navigation" and "Mining," set at either end of the front. All is in Portland stone. Some general exterior and interior views of the building were given in our last Edition de Luxe, dated December 31st, 1912.

## SCULPTURE ON PARIS OPERA HOUSE.

THE group of a horse with female attendant which we reproduce on page 301, as the ninth in our series of details of sculpture from the Paris Opera House, corresponds to the similar group (illustrated in our issue for last week) on the other side of the building. These groups form terminals to the corners of the curtain wall that rises behind the front block of the building.

## WORKING DRAWINGS BY WELL-KNOWN ARCHITECTS.

AS the twentieth example in this series we give, on pages 304 and 305, an admirable American detail of a New York house, by Messrs. McKim, Mead, and White. This we reproduce from our contemporary "Architecture." It is a very refined piece of work throughout, the ironwork detail being especially good.



Photo: Topical Press.

REGENT STREET QUADRANT TO-DAY.



## HERE AND THERE.

AMONG many poignant observations in the paper on "Modern French Architecture" which Mr. Billerey read before the Institute on Monday evening was this very true estimate of the work of Viollet-le-Duc, a Goth in the midst of Classicists: "To all appearances Viollet-le-Duc failed to obtain practical results from his efforts. He thoroughly failed in his endeavours to reorganise the Beaux-Arts School. His proposed reforms had been sanctioned by Napoleon III., but brought nearly a revolution, as, during the few lessons he gave, he had to seek police protection for his safety. His own methods of restoration have been condemned since as being too radical, and in the buildings he himself erected he showed that his creative power was not to be compared with his critical power." What a remarkable fact this last is, and how many instances there are, among architects of the past and of the present, testifying to its truth. It would be invidious to mention names, but those familiar with the architecture and the architectural literature of the day will recall several examples in this connection. The case would ever seem to be the same as that embodied in the preacher's maxim, "Do as I tell you, not as I do." As a matter of theory it might be assumed that a man who possessed great critical ability, and had a keen perception of the features that made or marred the work of another, would possess a similar critical judgment of his own work. But experience proves otherwise. Very rarely indeed are a fine designer and a good critic to be found in the same person. Consider, for example, what a wealth of knowledge of mediæval architecture Viollet-de-Duc possessed. To read his lectures is to become imbued with the adventurous spirit of construction that underlies the whole system of Gothic architecture; you feel that the author has a complete grasp of how design grew out of the static problems that confronted the old builders; yet, when it came to the translation of this knowledge into actual work, how disappointing was Viollet-le-Duc's achievement. And the same thing has been characteristic of many another erudite architectural scholar: which leads one to the conclusion that an architect should set himself to make a sharp choice between two alternatives. Either he must be architect first and critic afterwards, or the reverse. To me the former would seem infinitely the better choice to make, for we suffer from a dearth of good buildings in spite of an abundance of good critics, and there is much need for a reversal of this state of affairs. After all, it might be a boon if the wish which someone has recently expressed, that art criticism should cease absolutely for a decade, became an actuality.

\* \* \* \*

This being the season when not only the merle and mavis build, but photographers prepare to sally forth into the open, armed cap-à-pie, I would offer a mild protest against those interminable views of the cathedrals which seem to be regarded as the first and last resource of the architectural photographer. They have all been done already, and, in a thousand instances, well done; so let the north aisle and the choir and the right reverend bishop's doorway be left to the tender care of the snapshotting tourist. But I would recommend whole-heartedly that all architects have a camera handy, as the complement of the sketch-book. Together, these give a complete record, and it is well to laud the virtues of each, without despising their limitations. The man who can make some very indifferent (and probably inaccurate) studies on half a sheet of notepaper is especially vituperative where the camera is concerned. I am

ready to admit that a careful, even if rapid, drawing of a piece of building will furnish more material to the architect than a score of photographs, for it gives data as to construction and dimensions which do not come within the scope of the lens; nevertheless, even when turning the pages of a book so full of such admirable informative sketches as Professor Blomfield's "History," I cannot fail to feel the need of a good photograph to show what the work actually looks like. So let me plead the virtues of an instrument which, if it has no concern with the artist pure and simple, can certainly be put to very profitable use by the architect.

\* \* \* \*

It seems rather a sad decline for a writer in a serious journal like this to put forward evidence from the pages of "Tit-Bits," but my reference in last week's issue to the building of the Ellington School in a day leaves me no choice. Says our esteemed contemporary: "One of the most remarkable building feats on record has just been accomplished in Australia. At the town of Bankstown, New South Wales, a good-sized church was erected from foundation to roof in ten hours. While this was probably the shortest time that it has ever taken to erect a large building, there have been many other remarkable instances of quick building in the history of architecture. A few years ago a chapel known as the Split Log Baptist Mission Church, in Kansas City, was erected in the course of a single day. The chapel was 24ft. wide and 40ft. long, and had seats for over 200 people. At sunrise there was nothing to be seen but bare land, but at eight o'clock the same evening a service was held in the fully-completed place of worship! A remarkable fact about this chapel was that it was built entirely by amateur labourers. The people of a small Baptist congregation wanted a new chapel, so they set to work with a will to build one, and men, women, and children joined in the labour with equal enthusiasm." Now what have modern building firms, with all their steam cranes and electric travellers, their day and night shifts of workmen, to say to this? The example I cited last week was in this country at least, and I suppose, if need be, sworn evidence might be adduced to support the account. But could the same be done in the case of these conveniently far-off churches in New South Wales and Kansas City? I frankly doubt it. There is a certain class of information that gets into the public Press which, on principle, I never believe, and the above accounts of two wonderful feats of building seem to me to come into the category. How often do we read of "the greatest crowd ever assembled" and the "altogether unprecedented event," while the hottest July 15th, or August 2nd, or some other date, on record appears in the newspapers as regularly every year as the giant gooseberry and the sea serpent. The erection of the Kansas City church was certainly a good day's work, especially as it was done by the men, women, and children of the congregation. We may fairly be astonished by the sentence which runs "At sunrise there was nothing to be seen but bare land, but at eight o'clock the same evening a service was held in the fully-equipped place of worship," but, in order to maintain the reputation which this journal has for never being behindhand, I would hasten to cite the case of the building in another city of America which was begun at ten o'clock in the morning and was so rapidly proceeded with that by ten o'clock the same evening some of the tenants were being turned out for non-payment of back rent!

UBIQUE.



## CORRESPONDENCE.

*The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents.*

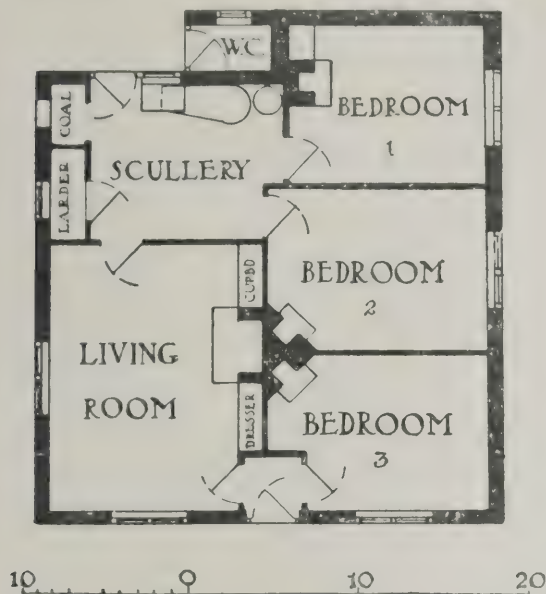
*Correspondents are asked to be brief and to write on one side only of the paper.*

*The Cheap Cottage.*

*To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.*

SIRS,—It is very kind of Mr. Swain to tell us in such an interesting article [March 5th, page 256] how it is done, and I hope he will take the criticisms of the plan that follow in the friendly spirit in which I offer them.

You will see from the accompanying sketch that I have not attempted a new plan, but only a few small



alterations to the one published in your March 5th issue. The general sizes are the same. The passage is omitted and the space is given to the bedrooms. All flues are away from outside walls. There is one chimney stack less, and this and the saving of partitions should slightly reduce the cost. The scullery and bathroom are thrown into one, thereby gaining in space, but losing in privacy. This arrangement is a great boon on "washing day," and a wood cover over the bath serves as a useful table at most times. I generally put a movable partition in a scullery-bathroom—the present plan would have to be entirely remodelled to suit this. Mr. Swain may object that I have robbed the copper of the kitchen range's friendly company. I wonder whether this is much loss. The cost of fuel for the copper would be practically nothing and the range would gain.

I think the weakest point in Mr. Swain's plan is that in case of illness the bedroom slops would have to be carried either through the living room or round the house outside. I have provided a more direct journey from two of the bedrooms, and in certain circumstances I would put a door between bedrooms 2 and 3.

S. B. K. CAULFIELD.

*The Strength of Camber Arches.*

*To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.*

SIRS,—The recent discussion in these columns about the arching action in a plain concrete floor slab reminds me of a similar theory with respect to the strength of camber arches. It is alleged that an arch of this type is virtually a segmental arch, with the top and bottom cut off to a level line, and that the only portion of it which serves any useful purpose is that which is circumscribed by two arcs struck from a point obtained by the intersection of the skewback lines produced, which fall within the area of the camber arch (see

Fig. 1). This they term the "invisible arch," and confidently assert that the portions shown hatched are useless except for the sake of appearance.

All this is used as an argument against any increase in the angle of skewback, which, as shown by dotted lines in Fig. 1, curtails the "useful area" of the arch.

The custom is to form the skewback at an angle of 60 deg. to the soffit line, no matter what the span of the arch, but it seems absurd to give to an arch of 18 in. span the same skewback as one which has to carry over an opening of 4 ft., and the architect's hand should be as evident in this factor of design as any other.

With all the curiosity of a "practical man," the writer determined, some years ago, to test this theory for himself, and, in pursuance of this intention, constructed an arch as shown in Fig. 2, and omitted the upper part of the three central courses. It was carefully grouted and allowed to stand a few days. When the centre was struck, so far from failing—as in theory it was bound to do—it supported a goodly weight placed upon it (at the haunches first) in the form of dry bricks. It was not desired to test it to destruction.

Where the theory mentioned fails is in that it makes no allowance for the ability of each component of the arch to transmit to its neighbour the stress received in another place; in other words, its resistance to "shear." This ability is fully recognised and forms an important factor in the design of the arches for skew bridges.

If the correctness of the arching theory in the case of the concrete floor slab is admitted, an inference to be drawn from the foregoing is that the resistance of part of the concrete outside of the "invisible arch" area to tensional stress (in the form of horizontal shear, or, as Mr. Waldram would term it, "intensity of drag") is serving a useful purpose. These remarks apply, of course, only to a slab which is not reinforced.

The writer has no desire to pose as an expert on this subject—far from it—indeed, to a plain man like himself, used to doing things rather than talking about them, it seems that the multiplicity of the theories advanced in connection with concrete construction tends to obscure the common-sense issues, and would lead one to suspect that the object in view by some of the specialists is to surround the subject with a halo of mystery (or mathematics), which will deter their fellows, who, while not lacking intelligence and common sense (these terms are *not* synonymous), have been less fortunate as to the acquirement of a knowledge of the "higher mathematics."

A few more articles on the lines of that by Mr. Waldram in your issue of February 26th would, I am

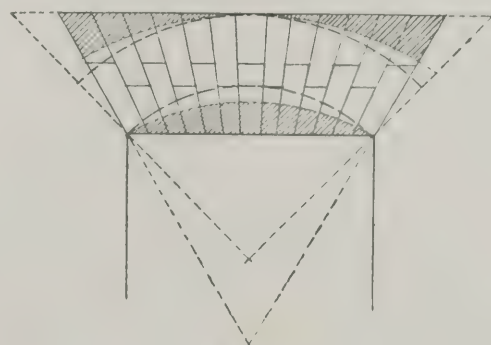


Fig. 1

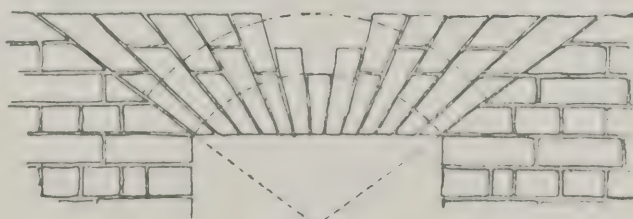


Fig. 2

sure, be welcomed by men who are engaged in the actual construction or supervision of concrete work; and, after all, these are the men who make or mar the success of any undertaking, no matter how well it may have been designed; and all know that an intelligent grasp of the principles underlying any operation inspires an interest and thoroughness in the execution of the work that no amount of supervision can obtain.

Mansfield.

L. E. W.

#### *Shop-front Philosophy.*

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—In your interesting article on "The Shop-front of Yesterday" [March 12th, p. 267] the writer overlooks the obvious reason for the evolution of the shop-front, from the bow-fronted, sashed-bar window to a sea of glass. The cause lies with the shopkeeper, whom experience has taught which is the better style to adopt.

The fanlights of Adam design and the trellis-headed sashes of Sheraton's time, mourned for lost by your contributor, are now present in greater numbers than ever. There is quite a wave of purism in styles prevailing at the moment, as reference to the majority of the newer shops will prove.

We can assure you that the shopkeeper really does reap a greater harvest by displaying his goods behind the "insecurity" of a sea of glass. The majority of architects are right in deferring their "taste" to the demands of the tradesman client. The tradesmen know their own requirements and the requirements of their customers rather better than the architect does. The shop-front is the tradesman's constant study, the subject of his continual thought and experiment. To the architect it is a minor detail—a mere potboiling interruption of his contemplation of majestic buildings and mighty cathedrals.

Therefore, for the architect to attempt to educate the tradesman into adopting the pretty-pretty, or the school-book classic, to build for art at any price, would imperil the commercial success of the tradesman's business. Would any architect accept, in a meek and humble spirit, and because his tailor professed to know best, a suit à la Beau Brummel?

Theorists on architectural style in shop-fronts overlook, or are totally unaware of, the radical and complete change in shopping habits of the last half-century. When roads were poor and the means of transport scarce shopping was rigidly confined to small districts; the public stated its wants and was content to take what the shopkeeper had in stock. Nowadays shopping is a fine art. The public demands to have

the goods displayed on the street front, where they can be seen and compared.

The plate-glass window—as large and unobstructed as is practical—is a modern commercial necessity. It is popular with shopkeepers because it is successful; it is successful because it suits the convenience of the public, who are the masters of us all.

E. POLLARD.

(For E. Pollard and Co., Ltd.)

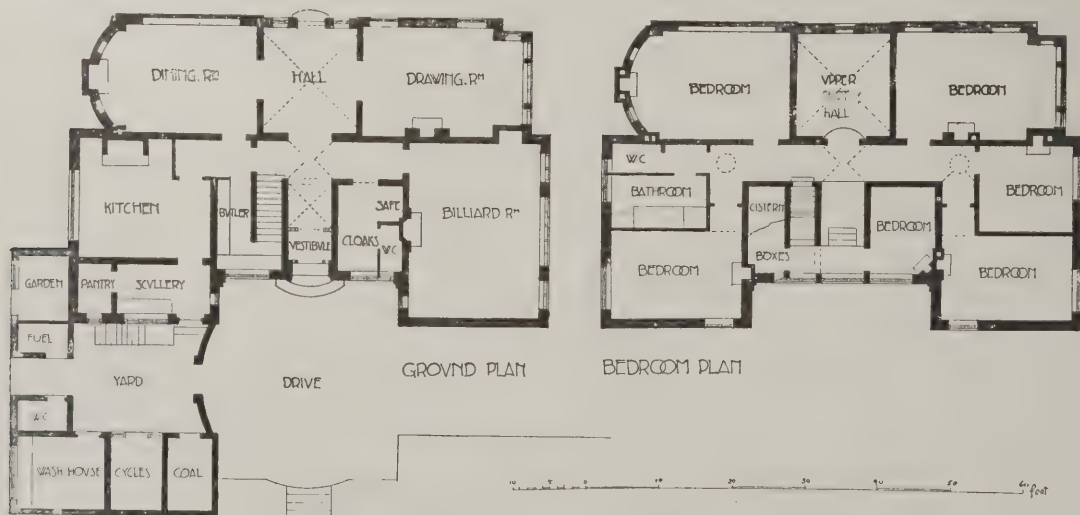
[The contributor of the article in question expressly disclaimed controversial intention, and Mr. Pollard's letter discusses issues which the writer of the article did not raise. Mr. Pollard's second paragraph seems antagonistic to the rest of his letter.—EDS. A. AND B.J.]

## THE WALDORF HOTEL FACADE.

THE Waldorf Hotel, on the curved arm—Aldwych—of the new thoroughfare that extends from the Strand to Holborn, may be counted among the small number of good buildings that have been erected in London within recent years. The façade is carried out in Portland stone and presents a fine series of columns rising from the level of the first floor and carrying an entablature treatment which embraces the windows of the upper storeys, the main cornice having stone vases at intervals along its length. Prominent features are the lively groups of boy figures arranged as metopes between the windows. We reproduce on the opposite page a telephotograph of the upper portion of the façade.

## MODERN DOMESTIC ARCHITECTURE.

WE publish this week on page 303 an interesting house by Mr. Edgar Wood—"Dalnyreed," Barley, Herts—as the first of a new series of examples of modern domestic architecture. This house is built of local thin sand-faced bricks and Bath stone, and has a flat reinforced concrete roof covered with asphalt. The roof water forms the only source of water supply (except drinking water, which is carried from a well in the village) and is stored in tanks formed below ground, which is all chalk. The house stands high, and has extensive views to the south. The work was carried out without contract, the builder being Mr. Albert Chuck, of Badley. The front entrance has interior marble jamb linings. Plans of the ground and first floors are given below.



"DALNYREED," BARLEY, ROYSTON, HERTS.

EDGAR WOOD, F.R.I.B.A., ARCHITECT.





*Telephoto: Architects' and Builders' Journal.*

WALDORF HOTEL, LONDON: DETAIL OF UPPER PART OF FAÇADE.

A. MARSHALL MACKENZIE, A.R.S.A., F.R.I.B.A., AND SON, ARCHITECTS.

(See page 293.)

LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS.





DETAILS OF SCULPTURE FROM THE OPERA HOUSE, PARIS—IX.

*(See page 295.)*

LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS



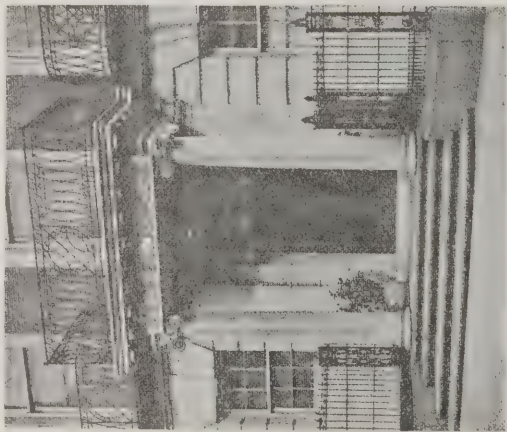


*Photo: Thomas Lewis*

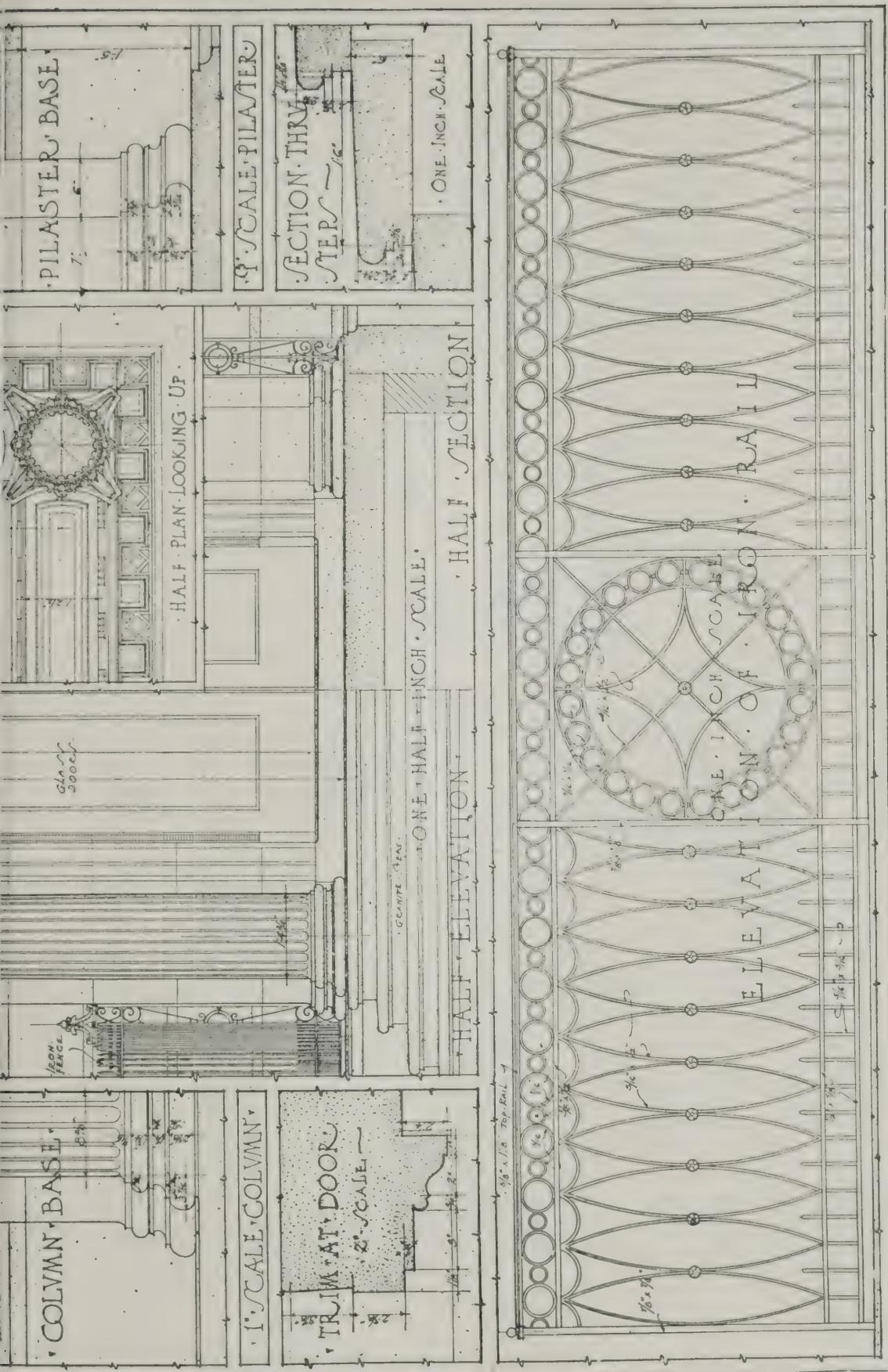
MODERN DOMESTIC ARCHITECTURE. I.—“DALNYREED,” BARLEY, ROYSTON, HERTS; ENTRANCE FRONT.

EDGAR WOOD, F.R.I.B.A., ARCHITECT.

(See page 208.)







SCALE OF FEET 12<sup>IN</sup> 0 1 2 3 4 5 6 7 8 9 10 11 12 FOR ELEVATION, ETC.

SCALE OF FEET 12<sup>IN</sup> 6 0 1 2 3 4 5 6 FOR DETAILS

WORKING DRAWINGS BY WELL-KNOWN ARCHITECTS—XX. ENTRANCE TO HOUSE IN WEST 54TH STREET, NEW YORK.

McKIM, MEAD, AND WHITE, ARCHITECTS.

(See page 205.)



DESIGN FOR A MAUSOLEUM ON A ROCKY ISLET IN A LAKE, ACCEPTED FOR PRELIMINARY  
EXAMINATION, BRITISH SCHOOL AT ROME. BY WALTER L. CLARK.

(See page 314.)



## MODEL ANSWERS TO R.I.B.A. EXAMINATION QUESTIONS.

BY G. E. FRANCIS.

In response to numerous applications, we publish this week the first of a series of model answers to questions set for the examinations of the Royal Institute of British Architects held in November last. The Intermediate Examination is first being dealt with.

THE principal styles and general history of architecture, and the purpose of architectural features in relation to the buildings in which they occur.

Not more than three questions were to be attempted. Time allowed,  $3\frac{1}{2}$  hours.

## Question 1.

Show by sketches the plan, section, and elevation of a Greek temple, and give a brief description of the events and people associated with its erection. State what is considered to have been the method of lighting, and in what respects the design was affected by the materials employed.

*Answer.*—The Parthenon at Athens, *a.c.* 454-438. Ictinus and Callicrates architects. Plan, peripteral octastyle, with seventeen columns on each flank. It is the finest example of Greek temples, all possible refinements being introduced. The building was erected under the direction of Pericles, the great Grecian statesman, when the Athenians were at the height of their power. The cella faced east and contained the statue of the goddess Athena. Several methods have been put forward for lighting the cella; that by Bötticher (shown in accompanying sketch) and Fergusson's being the best. The modern theory, however, is that light was admitted only through the doors. The material employed was marble from Mount Pentelicus. This admitted of the most exquisite workmanship, as seen in the carving of the Pan-athenaic frieze and the beauty and delicacy of the mouldings.

## Question 2.

Mention some of the principal remaining buildings of the Roman occupation of Gaul. Illustrate at least two examples with explanatory sketches or diagrams, and supplement your answer with general historical notes relating to that era.

*Answer.*—The campaigns of Julius Cæsar in Gaul in *b.c.* 59 made the Rhine and the English Channel the northern boundaries of the Roman Empire. In *b.c.* 55 Cæsar crossed into Britain. The Romans left numerous buildings, those in the South of France being particularly fine. (1) The Theatre at Orange, South France. (2) The Temple of Diana at Nîmes. (3) The Maison Carrée, Nîmes, erected during the reign of Hadrian, *A.D.* 117-138 (under whom the Roman Empire expanded to its greatest extent) being the best preserved Roman temple in existence.

## Question 3.

Give a brief historical account of the rise and development of Byzantine architecture, with sketches of some of the principal buildings of the period. Describe and illustrate the structural methods and any other causes which you consider to have governed the style.

*Answer.*—Byzantine architecture is that which was developed on the removal of the capital from Rome to Byzantium. It includes not only the buildings in that city, but also those erected under its influence, as at Ravenna and Venice. The Byzantine style was carried on until Constantinople fell into the hands of the Turks in *A.D.* 1453. Under Justinian the Church of Santa Sophia (*A.D.* 532-537) was erected by the architects Anthemius and Isidorus, and it remains the greatest achievement

in the style. The Byzantine is essentially a style governed by the employment of the dome, which, by the aid of pendentives, was used to cover squares on plan. One of the first indications of the pendentive is to be seen in the Minerva Medica, Rome, but these are very rough. Those at S. Vitale, Ravenna, are an advance on the latter, the culmination being seen in Santa Sophia. Usually a central dome dominates the whole mass, the thrusts being carried to the ground by means of buttresses in the form of semi-domes. All the buttresses are within the building, the outline on plan of Santa Sophia being approximately a square. Little care was taken with the exterior, apart from the general massing. Brick was mostly used, with stone bands. Internally the effect was magnificent, owing very much to the richness and profusion of the mosaics. In no style does the elevation so closely correspond with the section as in the Byzantine.

## Question 4.

Write a short historical account of the purpose and development of domes. Illustrate your answer with explanatory sketches indicating the various types and methods of construction.

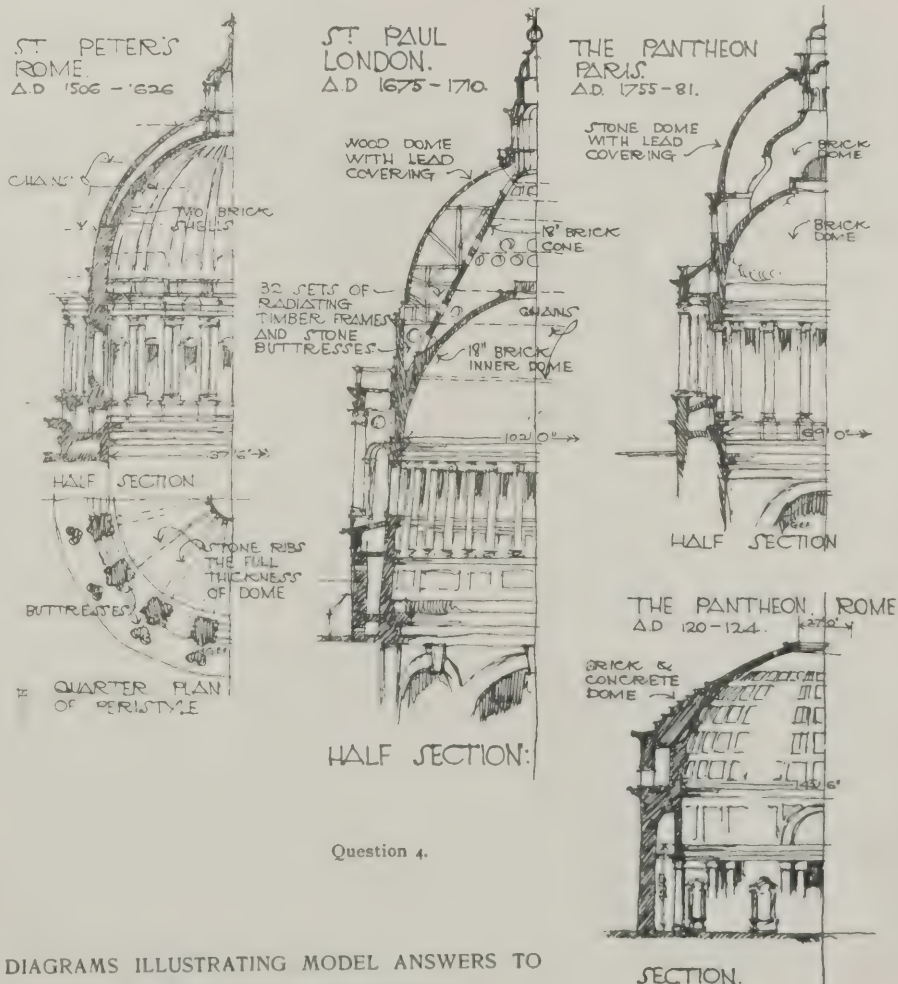
*Answer.*—The dome was introduced as a means of obtaining as large an unobstructed floor area as possible, and in later examples it was further developed until it

became at length a governing feature externally.

(1) The Pantheon, Rome (*A.D.* 120-124), by Hadrian, is even now the largest in existence, being 142 ft. 6 in. in diameter. As determined by Chedanne, it is constructed of brickwork, laid in almost horizontal courses up to the fourth range of coffers, and also near the central opening or eye. The intermediate portion was not examined, but a series of arches may have been formed in this portion, relieving from pressure the recessed openings below. The internal effect only is considered in this case.

(2) Santa Sophia, Constantinople (*A.D.* 532-537), 107 ft. in diameter, built by the order of Justinian by Anthemius and Isidorus. It is probably the finest example of the vast floor area obtainable by the use of domes. (See sketch to Question 3). The pendentive system had by this time been perfected, and in this building has a projection of 25 ft. and a height of more than 60 ft. The dome is constructed of 2-in. bricks about 24 in. square, laid in mortar with non-radiating joints, being nearly flat, and thus diminishing thrust.

(3) The Dome of Florence Cathedral (*A.D.* 1420-1434), 138 ft. 6 in. in diameter, by Brunelleschi, is really a huge vault, but it is in this example that the external appearance first receives consideration. Eight large and sixteen smaller stone ribs bind



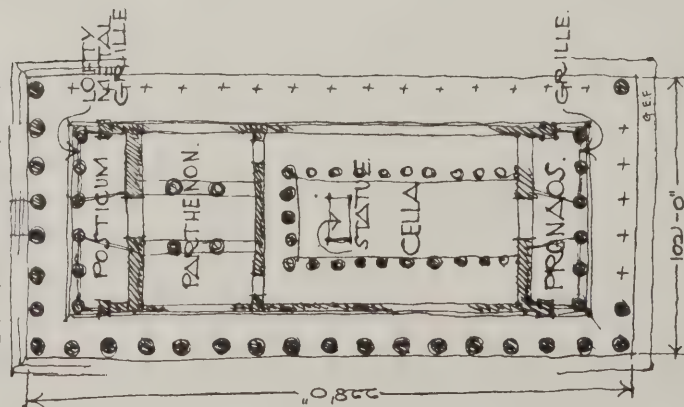
DIAGRAMS ILLUSTRATING MODEL ANSWERS TO R.I.B.A. EXAMINATION QUESTIONS.

THE PARTHENON.  
ATHENS. B.C. 454-438.

METHOD OF LIGHTING  
ACCORDING TO  
BOTTICHER



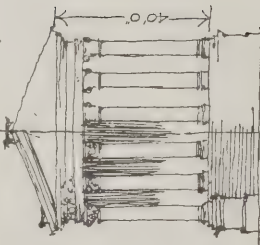
HALF  
ELEVATION: SECTION:



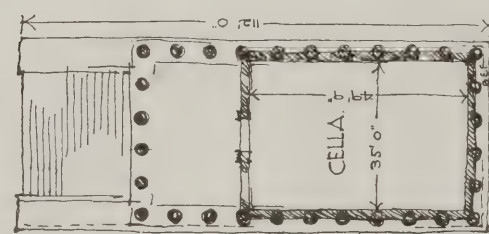
PLAN:

Question 1.

MAISON CARREE  
NIMES. AD. 117-135.



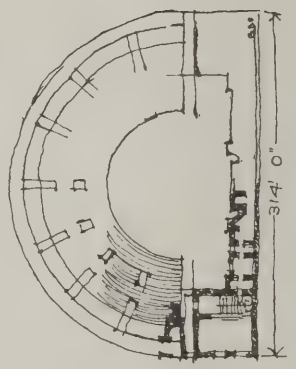
ELEVATION.



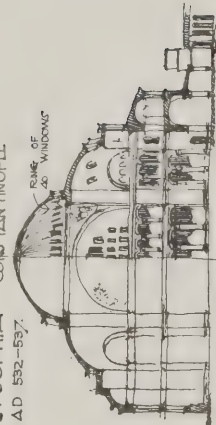
PLAN:

Question 2.

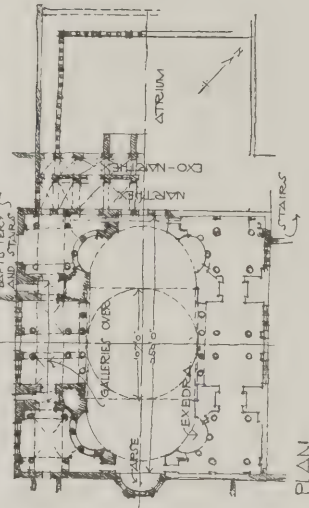
ROMAN THEATRE.  
AT ORANGE, SOUTH FRANCE.



S. SOPHIA  
CONSTANTINOPLE  
AD 532-537.



LONGITUDINAL SECTION



PLAN

Question 3.

THE MINERVA MEDICA.  
ROME AD 249-252.

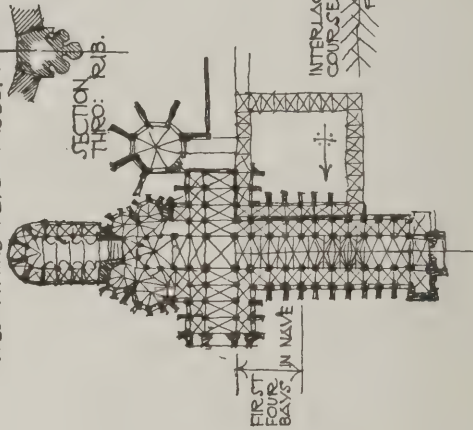


SECTION:



PLAN.

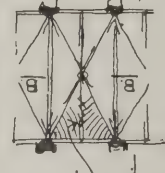
WESTMINSTER ABBEY:



THE FLOUGHSHARE TWIST  
(CAUSED BY DIFFERENCE IN  
LEVEL OF STRINGINGS)



ELEVATION AA:



PLAN.

ELEVATION BB.



BOSS

Question 5.



together two shells of brick and stone, which are not quite concentric.

(4) St. Peter's, Rome (A.D. 1506-1626), 137 ft. 6 in. in diameter, by Michael Angelo, is an exceedingly fine example. Sixteen great stone ribs, extending the full thickness of the dome, bind the two non-concentric brick shells together and carry the lantern. A third and inner shell was intended, but not carried out. Numerous chains (as shown on sketch) are resorted to for stability.

(5) The Pantheon, Paris (A.D. 1755-1781), 69 ft. in diameter, by Soufflot. Triple dome construction is found here, as also in the dome of the Invalides. The two inner domes are of brick, while the exterior is of stone covered with lead. The whole construction is very daring.

(6) St. Paul's, London (A.D. 1675-1710), 102 ft. in diameter, by Sir Christopher Wren. Triple construction is again employed here—first the inner dome of 18 in. brick, on the haunches of which rests the 18-in. brick cone, having numerous bands of stone, each containing a chain. On the cone rest thirty-two radiating sets of timber framing (as shown in sketch), supporting the outer wooden dome, which is finished with lead.

#### Question 5.

Describe the characteristics and purpose of thirteenth-century English stone vaulting. Give a sketch plan of a well-known example, indicating its position in relation to the building in which it occurs. Supplement your answer with larger sketches of mouldings and other features associated with the vaulting.

*Answer.*—The thirteenth-century vault was the natural solution of the problem which had developed at that time, *i.e.*, how to roof a number of rectangular compartments without stilting and other contrivances. It was achieved by making the diagonal rib of the rectangle a semi-circle or pointed, as desired, thus fixing the height of the vault. All the other ribs were made to rise to this ridge by striking them from various centres. Considerable spans were covered by this means, giving large unobstructed floor areas. The first four bays of the nave in Westminster Abbey are good examples, and show very clearly the "ploughshare twist" occasioned by stilting the springing of the former or wall rib, above the springing of the main vault, in order to increase the size of the clerestory windows. Where a large number of ribs collected, bosses were employed to cover the awkward juncture of the mouldings. The bosses were richly carved with curling masses of stiff leaf foliage.

#### University of Sheffield Department of Architecture.

During the Easter and summer recesses, vacation courses, open to all students of architecture, are arranged in connection with the Department of Architecture of the University of Sheffield. The object is the study of buildings of architectural importance, permission to sketch and measure being obtained, and an instructor accompanying the students. The Easter course will this year be held in Painswick and district, beginning on April 4th. For the summer course a tour in France is being arranged, beginning August 4th, and expected to last about sixteen days. Mr. W. S. Purchon, A.R.I.B.A., the Department lecturer, reports that in the past these vacation courses have produced much useful work, and it is believed that many architects will be glad to know that these facilities are open to them.

## PROJECTED NEW WORKS.

### *Civil Service Estimates for Public Works and Buildings.*

The statement of the net estimates for 1913-14 of expenditure on public works and buildings is as follows, the figures in parentheses showing, for purposes of comparison, the grants for 1912-13: Royal Palaces, £66,700 (£71,300); Osborne, £10,900 (£13,000); Royal Parks and Pleasure Gardens, £123,900 (£125,700); Houses of Parliament buildings £52,700 (£50,800); miscellaneous legal buildings, £66,750 (£79,200); art and science buildings, £105,630 (£144,051); diplomatic and consular buildings, £94,600 (£105,800); revenue buildings, £648,000 (£725,800); Insurance and Labour Exchange buildings, £223,200 (£350,300); public buildings, £766,570 (£727,300). These items for 1913-14 amount to £2,156,950, as compared with £2,393,251 for 1912-13. Further estimates are: Surveys of the United Kingdom, £210,900 (£214,589); harbours under the Board of Trade, £58,478 (£75,065); Peterhead Harbour, £32,000 (£32,000); public works and buildings, Ireland, £271,613 (£273,366); railways, Ireland, £48,416 (£48,360); the Palace of Peace, The Hague, £2,475 (for stained glass windows). There is a net decrease of £249,299. Of the amounts given large sums are expended on salaries, etc., but of the net total of £66,700 voted for palaces in His Majesty's occupation, £1,835 is for new works, alterations, and additions, and £22,802 for alterations and repairs. With regard to the Houses of Parliament buildings, £5,700 is allotted to new works, alterations, and additions; £11,160 to maintenance and repairs, £3,030 to maintenance of approaches and gardens; and £26,000 to warming, ventilating, lighting, etc. £6,750 is voted for expenditure in receipt of miscellaneous legal buildings. Of the £105,630 voted to art and science buildings in Great Britain, £40,410 is for new works, alterations, additions, and purchases, and £30,712 for maintenance and repairs. Of the £648,000 voted to Revenue buildings, Post Office and Telegraph buildings account for £246,420 to be expended on new works, alterations, and additions, with £136,200 for maintenance and repairs. Of the £223,200 voted to Insurance and Labour Exchange buildings, new works, alterations, additions, and purchases (National Health Insurance buildings) absorb £12,890, and similar charges for Labour Exchange buildings £60,875 with £14,990 for maintenance and repairs. Votes for acquisition of site and erection of Labour Exchange buildings include: Bristol, £10,000; Liverpool Docks, £21,500; Dundee, £15,400; Edinburgh, £10,600; and Glasgow, £6,500. Of the £766,570 allotted to public buildings, the item for maintenance and repairs (£186,770) is larger than that for new works, alterations, additions, and purchases (£183,815). In addition, public works and buildings in Ireland will take, for new works, alterations, and additions, £135,253; and for maintenance and supplies, £77,500; the principal vote required being £65,000 for national schools.

#### *Redecoration of the Royal Albert Hall.*

A scheme for the complete redecoration of the Royal Albert Hall is under consideration, and it is understood that about £10,000 is to be spent on the work.

#### *Blackburn's Town-planning Scheme.*

A scheme for the improvement of the central streets of Blackburn has been pre-

pared by the borough engineer, Mr. W. Stubbs, who proposes to divert "through" motor traffic from the main shopping streets. Two or three new roads are indicated, and several existing roads are shown widened to 60 ft. It is suggested that the present markets should be removed, leaving an open space in front of the town-hall.

#### *A Central Labour Hall for London.*

It is stated that a scheme for building a handsome central Labour Hall in London, estimated to cost £125,000, is now taking definite shape, and that a decision may be expected within a month.

#### *New Town Hall for Denbigh.*

A Local Government Board inquiry was held at Denbigh last week on the Town Council's application to borrow £10,000 to build a new market and Town Hall.

#### LONDON COUNTY COUNCIL SCHEMES.

The following projects have been recommended for approval by the London County Council:

*Battersea.*—*Wood Paving.*—Sanction to borrowing by Battersea Borough Council of £16,115 for hardwood paving.

*Hampstead.*—*Electricity, Building, Paving.*—Sanction to borrowing by the Hampstead Borough Council of £10,483 for electricity undertaking, of which £1,343 is for building work; also to the borrowing of £5,000 for paving works.

*Marylebone.*—*Site for New Town Hall.*—Sanction to the borrowing by the Marylebone Borough Council of £40,000 for the acquisition of a freehold site for a new town hall.

*Mile End.*—Erection of buildings at the rear of 23 and 24, Tredegar Square, Mile End, for the Guardians of Mile End.

*Norbury.*—*Housing Scheme.*—The Housing of the Working Classes Committee recommend that the development of the second and final part of section C of the Norbury estate shall be undertaken as soon as the council approves. The estimated expenditure is £74,000.

*Peckham.*—Erection of buildings on the northern side of Atwell Road, Peckham, for Mr. W. Monks.

*Poplar.*—*Repaving.*—Sanction to borrowing by Poplar Borough Council of £27,000 for repaving works.

*Walworth.*—Erection of a building on the southern side of Arnside Street, Walworth, on the application of Mr. E. Cannell.

*Wandsworth.*—Erection of buildings on southern side of Mount Ephraim Lane, Streatham, for Mrs. E. P. Mortimer.

*L.C.C. School Buildings.*—The programme of structural work to be carried out, in accordance with an agreement with the Board of Education, by 1915, is proposed to be varied by the substitution of the following works: Enlargement of the "Ennersdale," Lewisham, by 384 places; Kilmore Road, Lewisham, by 512; Cavendish Road, Clapham, by 176; Telferscot Road, Clapham, by 128; Manor Lane, Lewisham, by 176; Brandlehow Road, Wandsworth, by 384. Structural improvement of the junior mixed department of the Capland Street School, Marylebone, and of the Star Lane School, Fulham.

*New Schools* proposed are: Popham Road, Islington, 528 places, £12,266; Ocean Street, Stepney, 996 places, £21,993; Derinton Road, Wandsworth, 1,500 additional places, estimate exceeds £5,000. Hortensia Road, Chelsea, secondary school for 200 girls, Ashby and Horner's tender, £14,934.



## THE LUMSDEN CASE BEFORE PARLIAMENT.

ON March 11th, in the course of the resumed debate on the Address to the Speech from the Throne, Mr. Royds moved to add to the Address the following amendment:

"But humbly regrets that no legislation is foreshadowed which will have the effect of bringing the methods of valuation of urban and agricultural land pursued under the Finance (1909-10) Act, 1910, into harmony with the intention of this House and the declarations of your Majesty's Ministers when the Act was under discussion."

### *A Land Tax Pure and Simple.*

The interpretation placed on the provisions in the Act of 1910 by the House, Mr. Royds contended, and the statements made on behalf of the Government were that increment duty was a land tax pure and simple, a tax on the site value apart from any buildings on the land. In January, 1911, instructions to valuers were issued, and from these it became manifest for the first time that the increment tax would be levied not only on any rise in site value, but upon houses, buildings, and fortuitous profit of any kind, and claims of that character were made and upheld in a court of law. He gave details of two cases to show the nature of the claim. In Richmond a small house and shop was bought thirty years ago for £500, and on the death of the owner it was valued at £500 and estate duty paid on that amount. Again the house was sold for £500, and some months afterwards it was officially valued at £380, and thereupon a claim was made for increment duty on £120 on the ground that the house was sold for more than it was worth. If the sale had been for £450 there would have been a claim in the same way, though there would have been a loss of £50 on the transaction. Similarly in the Lumsden case, a house and shop was sold for £750, and a claim was made for increment duty on £125, the excess over the Government valuation of £625. The price paid had nothing to do with the value as defined by the Act; it rested with somebody else to say whether the property was sold at a price above its value or not. He maintained that this was not knowingly authorised by the House, and was not explained by the Government while the Finance Bill was under discussion. Though admittedly there was no rise in the value of the site, the claim for increment duty was made and upheld, site value being interpreted by the Act in a way that no person of ordinary intelligence would understand, in a way quite contrary to the declarations of the Government while the Finance Act was under consideration. The right hon. gentleman opposite was the only person who thought that builders' profits were not being taxed. If the tax was retained there would be very few houses built.

### *Contrary to the Intentions of Parliament.*

Mr. Fitzroy seconded the motion. He said it was clear that the tax was being imposed contrary to the intentions of Parliament and contrary to the wishes of 99 out of every 100 members of the House. There was no question that the country and the House of Commons had been grossly misled. If the effect on the building trade had been already so great as the figures which had been quoted showed, what would the effect be when the speculative builder realised that it was the intention of the Government that he should be taxed, not only if he happened to make

a trade profit, but even if on the occasion of a sale he actually made a loss?

Sir G. Younger said that the position of the feuar and speculative builder in Scotland was a very hard one. People owed very much to them, and yet the man who was really risking his money in the interest not only of himself, but of the people round, was the man who was to be penalised. If they were going to charge a man in cases of the kind indicated, where were they going to stop? The whole of this land taxation had been very onerous and burdensome to every one, and had given the minimum of result.

### *Equivalent to a 4s. Income Tax.*

Mr. Cassel was sure that the great majority of members never understood that people were going to be taxed with what was equivalent to an extra income-tax of 4s. in the pound, merely because, in the opinion of the valuer, too much had been paid for a building, without account being taken of any losses that might have been made. It was the duty of the Government to introduce legislation which would carry out what was the real intention of the House and put right the present injustice.

### *Increment without Increase.*

Mr. Wedgwood said that they on those benches were very much in agreement with hon. gentlemen opposite on this matter. They had had case after case where increment duty was being charged when there was no increase in land value at all. Obviously that was not carrying out the spirit, whatever it might be as to the letter, of the increment tax. They were opposed to the increment duty altogether, and hoped it would be abolished at the earliest possible moment.

### *The Government Impenitent.*

Mr. Masterman, speaking on behalf of the Government, said that not only was the difference between the valuation of site value on agricultural land and of site value in towns clearly understood when the Bill was under consideration, but from the first to the last of the debates there was never any doubt that the measure of the increment tax on consideration was different from the measure on death or on the periodical valuation of corporate land every fifteen years. The valuation was for the purpose of levying the undeveloped land tax and the increment tax in order that a datum line should be drawn as from April 30, 1909, from which the increment should in future be collected. If for levying the increment tax they had placed the conditions of valuation for accessible site value of agricultural land on the same footing as for urban land they would have done a very considerable injustice to the present owners of agricultural land. With regard to the increment value duty, he found himself in the unpleasant position of discussing a case which was more or less *sub judice*. As to the allegation that builders all over the country were being depleted of money they ought justly to have, and that they had stopped building, he declared that not a farthing of increment tax had been paid by or asked for from any builder in the country with the exception of the Lumsden case, although the cases settled with builders amounted to tens of thousands. In the Lumsden case, the property fetched £750. In consultation with the Inland Revenue valuer, Mr. Lumsden agreed that the value of the

property as between a willing seller and a willing purchaser was £625. Why was it actually sold for £750? The reason was the man who bought paid £750 under the impression that he was giving a monopoly value for the shop. If a monopoly guarantee had been embodied in the covenant, then the "total value" would not have varied from the selling value. Under those circumstances, it was perfectly proper the builder himself should contribute a proportion of the increment value duty. He knew of no other case in which the price paid had been over the total value and the Government had not challenged the price except where there had been a monopoly value. The statement made by the Chancellor of the Exchequer to the builder in October, 1910, had been carried out in letter and spirit. It was not the money a builder spent that he could deduct, but the value he created. By an expenditure of £500 a value of three times that amount might be created, or another man might create only a value of £300. The result of a builder's ingenuity and skill must be attributable to the value of the building, and must be deducted before increment value was paid. But where the value was due to the location of the land, where the land was held up against the buyer who found it necessary to have his building on particular land, as in the case of a hospital requiring adjoining land, then the increase in price was a legitimate subject for increment value duty. In conclusion, he submitted that he had shown that the collection of increment tax as from price and not from value, starting from the initial value of the great valuation, but afterwards from price of sale, was clearly before the House all through the debates in 1909.

### *Builders' Profits Not Taxed!*

He had shown that, so far from taxing builders' profits, not a single builder had been asked to pay a farthing for increment tax, except in the special circumstances connected with the Lumsden case. In that case they were taxing what they had a right to define as profits obtained from the monopoly value of land. So far from acting contrary to the law, the Inland Revenue authorities had been merely acting according to the plain statement of the case on the Budget and the intentions of Parliament when the Budget was passed.

### *The Chancellor's Broken Pledge.*

Mr. Pretymann contended that the real point which appealed to the building trade and owners of house property was whether increment value duty was or was not being charged nominally upon an increase in the value of the land when it was admitted there had been no increase in the value of the land. Just before the General Election the Chancellor of the Exchequer had written a letter to Mr. Smethurst [who was then president of the National Federation of Building Trades Employers] in which he had said that it was only proposed to levy increment value duty where there was an increase in the value of the land itself due, not to the action of the owner, but to the action of the community. On that assurance Mr. Smethurst had sent a circular to the building trade that they had nothing to fear, but, Mr. Pretymann declared, it was now evident that the assurance which the Chancellor of the Exchequer had given to him had not been fulfilled. The instructions issued in the White Paper said that increment value duty was collect-



able whenever the unit of valuation, the house as well as the land, was sold for more than it was worth at the time. What that meant was that the statutory worth of the property at that moment was what the valuers had placed upon it, and what the property was not worth was what it would fetch in the open market. They had had it definitely from the Chancellor of the Exchequer that no duty would be chargeable unless there was an increase in the value of the bare land. What they were discussing was part of the larger question of Departmental law making. Here there had been a distinct understanding with the House of Commons that increment duty was only to be levied on an increase in the bare value of the land. In dealing with this matter, the Government had two lines of defence. One they reserved for the House of Commons and the other they took into the Law Courts. Of the justification which the right hon. gentleman had just given, and of the facts upon which he based that justification in regard to the Lumsden case as to monopoly value, the removal of restrictions, and so on, not one word was heard in the Court of Law. The justification offered in the Court was simply that this was a fortuitous windfall, and the claim now made was that that part of a profit which was a fortuitous windfall was liable to a tax of 4s. in the pound. But there had been a case in the Court of Session in Scotland in which it was decided that part of the profit which had been made by the sale of some real property was a sentimental profit and not liable to duty. So that now, whenever there was a sale of a piece of house property, this investigation was to take place. There had been a sale and a profit; a certain percentage of the profit was legitimate, a certain percentage was sentimental, and a certain percentage was a fortuitous windfall; that part which was legitimate and that part which was sentimental were not taxable; that part which was fortuitous was subject to a duty of 4s. in the pound. What a vista of litigation that opened up! It simply meant that every poor man who was faced with a claim of that kind had got to pay because he could not fight the Government in the Law Courts, but a rich man, who had capable advisers, would be able to fight the case, and the probability was that the duty would rarely be levied upon him. The consequences of levying the tax on this basis fell on the very poorest of the population, because the indirect effect of the tax was to raise the rents charged for small house property. The Government had succeeded in inventing a tax which was a heavy and onerous burden on property, and which yet produced little or no revenue. Both on the demand that the pledges of the Chancellor of the Exchequer should be fulfilled and on the economic ground that this method of levying taxes was wrong, he hoped that there would be such an expression of opinion as would force the Government to recognise their responsibilities.

#### *How It Prejudices the Poor.*

Sir A. Markham, in supporting the amendment, said that he represented an industrial constituency in which a very large number of working men had by self-sacrifice, industry, and thrift bought a small piece of land and become their own landlords. They asked him how the Government valuer could differentiate between whether it was the land that had risen in value or the house. Of course that was impossible. If a working man who, by self-sacrifice, had become his own landlord, sold his house he was prejudiced,

or, in the event of his death, his family were prejudiced. If such a man wished to borrow money on the security of his house he could not raise the amount which he had spent upon it because the Government valuers always fixed the value much below the cost of building the dwelling.

#### *Checks Building and Increases Rents.*

Mr. Peto said that when the Budget of 1909-10 was passed it was generally understood by members of the building trade and by the general public that increment duty would be charged only upon the increased value given to land by the growth of the community and not by the expenditure and enterprise of the owner. When a Government official going behind the market claimed to have a knowledge of the value of land that was not possessed by buyer and seller and by a special method found reasons for imposing the increment tax, it was not surprising that the effect had been to check the building of small houses and to increase rents.

The House divided and the numbers were:

For the amendment .....	100
Against .....	191
Majority .....	—91

### MEMORIAL TO MR. NORMAN SHAW.

The Executive Committee of the Norman Shaw Memorial Fund (comprising the Earl of Plymouth, Sir Edward J. Poynter, R.A., Sir Thomas G. Jackson, R.A., Sir Aston Webb, C.V.O., C.B., R.A., F.R.I.B.A., Professor Reginald Blomfield, A.R.A., P.R.I.B.A., and Mr. Fred A. White) have published the following letter:

"Mr Norman Shaw's reputation is too world-wide for it to be necessary to do more than recall the fact that England abounds with works of his whose place is second to none in the architectural achievements of the nineteenth century. But not only as an architect and artist will Mr. Shaw's memory live in the recollection of those who knew him and be bequeathed to generations to come. The fine sensibility which is discernible in his works was the product of a personality of unusual refinement and dignity, while his relations with all with whom he came into contact were marked by a courtesy and consideration not less impressive than were his decision of character and his ripe judgment. Moreover, his great influence upon the art of his day is recognised not only by his immediate colleagues and contemporaries, professional and lay, but also by that younger generation of architects who will be responsible for the works of the present century.

"On all these grounds a memorial seems to be due to him, and it is proposed that it take the form of a portrait bust with a suitable inscription, to be placed in front of his great building at New Scotland Yard, facing the Thames Embankment.

"It is hoped that it will be designed by Professor W. R. Lethaby, one of Mr. Shaw's pupils, and that the sculpture will be executed by Mr. Hamo Thornycroft, R.A.

"Contributions may be addressed to the London County and Westminster Bank, Lombard Street, account 'R. Norman Shaw, R.A., Memorial Fund,' or to the hon. secretary and treasurer, Mr. Fred A. White, at 8, Lloyd's Avenue, E.C."

The General Committee of the fund is composed as follows: Mr. J. Belcher,

R.A.; \*Professor Reginald T. Blomfield, A.R.A., P.R.I.B.A.; Mr. J. R. Clayton, Sir Luke Fildes, R.A., Sir Ernest George, A.R.A., Sir Edward Henry, K.C.B., Chief Commissioner of Police; Mr. J. P. Heseltine, Mr. H. Douglas Horsfall, Mr. Gerald Horsley, F.R.I.B.A., \*Sir T. G. Jackson, Bart., R.A., Mr. Arthur Keen, F.R.I.B.A., Professor W. R. Lethaby, F.R.I.B.A., Sir A. Lazenby Liberty, Mr. Mervyn E. Macartney, B.A., F.S.A., F.R.I.B.A., Sir Richard B. Martin, Bart., Mr. Ernest Newton, A.R.A., F.R.I.B.A., \*the Earl of Plymouth, \*Sir Edward Poynter, Bart., P.R.A., Professor E. S. Prior, M.A., F.S.A., F.R.I.B.A., Sir W. B. Richmond, K.C.B., Mr. Briton Rivière, R.A., Mr. R. Phené Spiers, F.S.A., F.R.I.B.A., Mr. P. C. Thicknesse, Mr. Edwin Tate, Mr. H. Thornycroft, R.A., Mr. W. Vivian, \*Sir Aston Webb, C.V.O., C.B., R.A., and \*Mr. Fred A. White, hon. secretary and treasurer.

Names marked \* form the Executive Committee.

The following is a preliminary list of contributions:

	£ s. d.		£ s. d.
Reginald Blomfield, Esq., A.R.A. ....	5 5 0	Henry Makins, Esq., F.R.I.B.A., Earl of Plymouth .....	25 0 0
Sir Luke Fildes, R.A. ....	5 0 0	Briton Rivière, Esq., R.A. ....	5 0 0
Sir Ernest George, A.R.A. ....	7 7 0	R. Phené Spiers, Esq., F.S.A., F.R.I.B.A. ....	3 3 0
J. P. Heseltine, Esq. ....	25 0 0	Edwin Tate, Esq. ....	50 0 0
Gerald Horsley, Esq., F.R.I.B.A. ....	5 5 0	Hamo Thornycroft, Esq., R.A. ....	4 4 0
Sir T. G. Jackson, Bart., R.A. ....	5 0 0	W. Vivian, Esq. ....	25 0 0
Professor W. R. Lethaby ....	10 0 0	Sir Aston Webb, C.V.O., C.B., R.A. ....	10 10 0
Sir Richard B. Martin, Bt. ....	21 0 0	Fred A. White, Esq. ....	25 0 0

[It need hardly be said that we are heartily in concurrence with the object in view.—Eds. A. and B. J.]

### IN PARLIAMENT.

(By Our Press Gallery Representative.)

#### *Town-planning Schemes.*

Mr. John Burns stated, in reply to Mr. Leach, that he had sanctioned the preparation of thirty town-planning schemes by twenty-four local authorities, and four of those schemes had been made by local authorities and submitted to him for approval. He also had under consideration applications for authority to prepare thirteen other schemes by twelve local authorities. The area of the land included in the above schemes exceeded 60,000 acres. In addition about 100 other cases had been brought to his notice in which the local authorities were considering the question of preparing schemes, and there were no doubt many others in contemplation.

#### *Housing Bills.*

Private members balloted for precedence in respect of Bills last week, and among those introduced is a measure to provide for the better application and enforcement of the Housing of the Working Classes Acts and to amend the Small Dwellings Acquisition Act, 1899. Mr. Randolph Baker is in charge of the Bill. Captain Campbell has presented a Bill to provide for the better housing of the working classes in Scotland. Mr. Dundas White has brought forward a Bill for the purpose of ascertaining the land values of Scotland and for other purposes connected therewith.



## AN L.C.C. SCHOOL-DESIGNING COMPETITION.

The Education Committee of the London County Council have submitted the following report for the consideration of the Council:

From time to time we have had under consideration the possibility of effecting economies in the cost of school by modifications of design and materials used in construction. We think that an appropriate opportunity has arisen for inviting architects in open competition to submit designs for two schools. This will give the Council an opportunity of comparing the cost of different types of buildings, and of ascertaining what possibility there may be of new methods of treatment with regard to school planning.

We have considered as to the best means of putting into effect the views indicated above, and we propose that the experiment shall be tried at the following two schools:

(i.) Billingsgate Street site, Greenwich—512 elementary school places.

(ii.) Linda Street site, Battersea—1,264 elementary school places.

We desire, however, to direct the special attention of the Council to the fact that, under the Education (Administrative Provisions) Act, 1911, there is now no supervision from or responsibility on the part of the district surveyor in respect of school buildings, the plans of which have been approved by the Board of Education. In the case, therefore, of the two schools proposed to be erected by outside architects, no officer of the Council would be responsible for the construction or stability of the building. The Act also releases school buildings from compliance with the London Building Acts and other local acts and by-laws.

We think, therefore, that, in order to protect the interests of the Council, a clause should be inserted in the conditions of the competition, indicating that compliance shall be made with statutory conditions and the general provisions of the London Building Acts. In these circumstances, while we do not propose that the drawings and specifications shall be referred to the Council's architect for report, we are of opinion that a clerk of works should in each case be appointed by and be directly responsible to the Council.

We consider that, for the purposes of judging the designs submitted, one assessor should be appointed. The usual scale of charges for assessing competitions is thirty guineas, plus one-fifth per cent. on the estimated cost of the proposed building. It is not possible at present to give any definite statement as to the actual expenditure which this would involve, owing to the fact that the estimated cost of the schools will be a factor in determining the merit of plans; nor, in the circumstances, is it desirable to base any estimate upon an approximate estimate of the Council's architect as to the cost of the work, if carried out under the usual procedure of the Council. We are not at present in a position, therefore, to submit the necessary detailed estimate for assessors' fees. We have explained this position to the Finance Committee, and we laid before them, at the same time, a general statement as to our proposals. In the event of the Council giving assent to the principle involved, a complete scheme of regulations for the conduct of the competition will be prepared, but we may mention at this stage that it is our intention that a clause should be inserted in the regulations to secure that the Council's conditions of contract

shall be observed, and that the competition and payment to the successful architect should be generally in accordance with the regulations of the Royal Institute of British Architects.

It is not intended to offer any premium to any competitor. The Finance Committee have approved, for the purposes of the "40" and "48" scheme, the inclusion of the two schools in question in the period in which it is anticipated that the contracts will be let.

## NEWS ITEMS.

### *The W. S. Gilbert Memorial.*

Sir George Frampton, R.A., has accepted the commission to execute the memorial to the late Sir W. S. Gilbert, which is to be set up in the Embankment Gardens, near the Savoy Theatre. The hon. treasurer of the fund for this purpose is Mr. Rowland Brown, 3, Pump Court, Temple.

### *Ventilation of Picture Theatres.*

In the course of a discussion on building by-laws at the Surveyors' Institution last week, one of the speakers said that, while some precautions had been taken to protect the public from fire, little or nothing had been done to secure adequate ventilation. The pestilential atmosphere of many of the cinematograph theatres, he said, was far deadlier in the long run than fire panic.

### *Mr. John Lavery.*

Mr. John Lavery, A.R.A., has been chosen to fill the chair left vacant by the death of Sir L. Alma Tadema in the Belgian Royal Academy of Arts and Letters. Mr. Lavery, who is at present engaged in painting the portraits of the King and Queen, was born in Belfast, and he migrated to Glasgow, where he won fame as one of the Glasgow school.

### *Higher Wages for London Builders.*

As the result of the agitation launched by the London District Committee of the Amalgamated Society of Carpenters and Joiners, 20,000 men last week received an increase of wages at the rate of one half-penny per hour. This is the second increase, the first instalment having been conceded in September last. The hours at present worked by the men are 50 per week in summer and 44 in winter (17 weeks), the rate of pay being 11½d. per hour.

### *Town Planning Schemes for Scarborough and Wirral.*

The Local Government Board have given authority for the preparation of town-planning schemes by the Corporation of Scarborough and by the Rural District Council of Wirral respectively. In the case of Wirral the scheme is to apply to an area situated in the parishes of Heswall-with-Oldfield, Barnston, Gayton, and Pensby, and comprising about 3,430 acres. In the case of Scarborough the scheme is to extend to an area of 40 acres in the borough.

### *Leighton House as a Memorial.*

A scheme for preserving Leighton House to the nation as a museum and art centre, and as a permanent memorial to the late Lord Leighton, was brought before the annual meeting of the Imperial Arts League last week by Sir Edward Poynter, P.R.A. The meeting took place at Leighton House itself, in the studio of its late owner, and there was a large gathering of well-known artists. The owners of the estate are willing to sell, on fair conditions, to the Imperial Art League as permanent

trustees, the freehold of the property for £3,000. Were the public willing to provide a maintenance fund and the expenses of carrying the scheme into effect? asked Sir Edward. It had been estimated that a sum of £15,000 would be required to provide such a fund and to discharge all expenses of the sale and the creation of the trust. Here was a property worth a total of about £50,000, of which £15,000 only was now required. The meeting decided that the offer of the proprietors of Leighton House should be accepted subject to the raising of the required £15,000.

### *Hospital Ventilation.*

The new Isolation Hospital at Colne, is being supplied with Shorland's warm-air ventilating patent Manchester stoves and patent exhaust roof ventilators, by Messrs. E. H. Shorland and Brother, Ltd., of Failsworth, Manchester.

### *Cost of London County Council Architecture.*

In reply to a question as to the cost of London County Council architecture, it was stated, at the meeting of the Council held on February 18th, that "under ordinary circumstances the percentage of the cost of the staff engaged on new school buildings, including establishment charges, is less than half the scale laid down in the R.I.B.A. schedule."

### *A Temple in the Sphinx.*

Great interest is being taken in the recent discoveries at the Sphinx. Professor Reisner has succeeded in removing the accumulated sand of some sixty centuries from the interior of the head, and has gained entrance through the neck to a temple that runs the whole length of the gigantic body, measuring 120 ft. in length. In this temple is a pyramid which forms the tomb of Menes, the first King of Egypt, and is supposed to contain his mummified body. Sloping passages from the temple lead to other chambers as yet unexplored and, it is thought, to a subterranean city. The importance of these discoveries can hardly be exaggerated.

### *The Safety of St. Paul's.*

The Dean and Chapter of St. Paul's have addressed an official letter to the Lord Mayor inviting the Corporation to enter into a general agreement with them for the purpose of safeguarding the cathedral against any future schemes of tunnelling in its vicinity. Canon Alexander has stated that the Chapter felt strongly that some method ought, if possible, to be found of surrounding the building with a permanent line of defence, and there was good reason to hope that the Corporation, who were animated by a most generous spirit in their attitude to the national cathedral, would do everything in their power to reduce the risks to which the fabric was exposed.

### *The Federal Capital of Australia.*

The ceremony of naming the Federal capital and the laying of the foundation-stones of the "commencement" column were carried out on March 12th. Lord Denman, the Governor-General, laid the first foundation-stone. Mr. Fisher, the Prime Minister, and Mr. O'Malley, Minister for Home Affairs, laid others. At noon Lady Denman named the capital Canberra (the accent is on the first syllable). The "commencement" column is to stand on the slopes of the city's highest hill, before the Capitol. The pedestal will be composed of granite from the six States, and if possible stone from all parts of the Empire will be used in the composition of the column.



## SOCIETIES AND INSTITUTIONS.

## R.I.B.A.

*Special General Meeting (Royal Gold Medal).*

At a special general meeting, summoned under By-law 70, for the election of the Royal Gold Medallist for the current year, and held Monday, March 3rd, 1913, at 8 p.m.—Present: Mr. E. Guy Dawber, vice-president, in the chair; ten Fellows (including five members of the Council), fifteen Associates (including one member of the Council), and one Licentiate—the Chairman moved, Mr. W. Henry White (F.) seconded, and it was resolved, by acclamation, that, subject to His Majesty's gracious sanction, the Royal Gold Medal for the promotion of Architecture be presented this year to Mr. Reginald Blomfield, A.R.A., for his executed works as an architect and for his contributions to the literature of architecture. The special meeting then terminated.

*Business General Meeting.*

At a general meeting (business) held Monday, March 3rd, 1913, following the special general meeting above recorded and similarly constituted, the minutes of the meeting held February 17th having been already published, were taken as read and signed as correct.

The decease was announced of Percy Richard Bradford, Licentiate.

The following candidates were elected by show of hands under By-law 10:

*As Fellows (11).*

Allsop, George Wilfred (A. 1902), Auckland, N.Z.

Gill-Knight, John Albert (A. 1891).

Greenop, Edward, P.A.S.I. (A. 1895).

Mackenzie, Alexander George Robertson [A. 1901].

Scorer, George Oakley [A. 1895].

Spalding, Reginald Henry [A. 1900].

Stratton, Arthur James, F.S.A. [A. 1896].

Streafeld, Granville Edward Stewart [Licentiate].

Walford, William John [A. 1901].

Ward, Charles Frederick, A.M.I.C.E. [A. 1902], Newport, Mon.

Widdows, George Henry [A. 1904]. Derby.

*As Associates (40).*

Allen-Lodge, A. R., F.S.I. [Special].

Andrews, P. M., F.S.I. [Special].

Barrow, J. W., F.S.I. [Special].

Blenkinsopp, H. J., F.S.I. [Special].

Selby, Yorks.

Brewerton, F. A., Manchester.

Bucknell, L. H., Manchester.

Butler, A. S. G., Manchester.

Chisholm, D. J., Manchester.

Cole, L. E., Manchester.

Cooper, A., Newbury.

Dewhurst, R. H., Newbury.

Foster, T. O. [Special].

Gibson, E. H., Harrogate.

Gold, H. A., Harrogate.

Gordon, C. B. [Special].

Hinton, J. G., Winchester.

Ingram, T. F., Winchester.

Meadows, S. D., Winchester.

Milburn, S. W., Sunderland.

Moore, H. E., Sunderland.

Murray, C. H., Eastbourne.

Newton, W. G. [S. 1911].

Pease, A., Nottingham.

Phillips, R., Nottingham.

Pigott, R. M., Nottingham.

Rahbula, E. A. R., Nottingham.

Reid, C. E., Nottingham.

Roberts, T. L. [Special], Nottingham.

Sunningdale, Nottingham.

Scott, H. S. [Special], Nottingham.

Solomon, H., Shrewsbury.

Stenner, W. J., Bristol.

Pease, A., Nottingham.

Phillips, R., Nottingham.

Pigott, R. M., Nottingham.

Rahbula, E. A. R., Nottingham.

Reid, C. E., Nottingham.

Roberts, T. L. [Special], Nottingham.

Sunningdale, Nottingham.

Scott, H. S. [Special], Nottingham.

Solomon, H., Shrewsbury.

Stenner, W. J., Bristol.

Sullivan, B. M., Bristol.

Sutherland-Graeme, A. V., Bristol.

Thoms, W. G., Nottingham.

Waghorn, S. S., Nottingham.

Walgate, C. P. [Grissell Medallist], Nottingham.

Weedon, H. W., Birmingham.

Weinberg, J., Birmingham.

Williams, D. [Special], Birmingham.

Williams, S. H., Sheffield.

Williams, S. H., Sheffield.

Williams, S. H., Sheffield.

Williams, S. H., Sheffield.

Williams, S. H., Sheffield.

Williams, S. H., Sheffield.

Williams, S. H., Sheffield.

Williams, S. H., Sheffield.

Williams, S. H., Sheffield.

Williams, S. H., Sheffield.

Williams, S. H., Sheffield.

Williams, S. H., Sheffield.

Williams, S. H., Sheffield.

Williams, S. H., Sheffield.

Williams, S. H., Sheffield.

announced the object for which the meeting had been called—viz., to consider the Council's proposals for amending Bye-law 27, so as to make provision for the permanent representation of the Royal Institute of the Architects of Ireland on the Council of the R.I.B.A. and to authorise the Council to take the necessary steps to obtain the sanction of the Privy Council to such amendment—and stated that, suggestions having been made by several of the Allied Societies that the whole question of the representation of such Societies should be further considered, the Council had decided to withdraw the resolution of which notice had been given pending the further consideration of the question.

The matter for discussion having thus been withdrawn, the meeting separated at 8.20 p.m.

## LONDON MASTER BUILDERS' ASSOCIATION.

The first meeting of the Council for the year February, 1913-14, at which there was a large attendance, was held at Koh-i-Noor House, Kingsway, W.C., on March 13, Mr. Walter Lawrence, jun., in the chair.

Before proceeding with the business on the agenda, the President welcomed the newly elected members of the Council and warmly expressed the gratification of the Council upon the presence of the late President, Mr. James S. Holliday, after his recent illness. Mr. Holliday having thanked the members present, the President referred to the regret he felt at having been unavoidably absent from the annual general meeting of the association on February 27th, when he was elected to the position, and desired to take this the earliest opportunity of thanking the members of the association for the honour conferred upon him.

The reports of the Special and Finance Committees were duly received and adopted, and instructions given thereon.

The various committees for the current year were duly appointed.

Correspondence relating to trade matters was read.

## GLOUCESTERSHIRE

## ARCHITECTURAL ASSOCIATION.

Mr. T. H. Mawson, Hon. A.R.I.B.A., on "Small Gardens."

At a meeting of the Gloucestershire Architectural Association, held at the Northgate Mansions, Gloucester, on February 27th, the president, Mr. T. Overbury, in the chair, a lecture was delivered by Mr. T. H. Mawson, Hon. A.R.I.B.A., on "Small Gardens."

Mr. Mawson, in the course of his lecture, said that the subject of gardening has largely fallen into the hands of amateurs, who, in the fulness of their ignorance, do not hesitate to instruct the expert, nor to tackle with a light heart problems which, after forty years of exceptional experience, the lecturer would approach with a feeling of diffidence. The author could claim, however, that out of his long experience there had emerged certain well-defined principles about which he felt entitled to say, "I know," and it was some of these principles that he proposed to place before his hearers. Having given a delightful description of four gardens made by three girls and a boy at a country house, Mr. Mawson said that

these four gardens, taken together, gave us almost the complete ideal for a small garden, for here you have something for colour, something for variety, something for use, and something for recreation, treated as separate and detached units, yet exhibiting due relation and proportional unity and order.

A garden is usually esteemed according to the amount of money that has been lavished upon it. This is altogether erroneous, because only the gardens of millionaires and kings would be esteemed if this ideal were the true one, and the standard by which every garden would be judged would be the expenditure lavished to make and maintain it. Another mistake concerning gardens is that they are to be judged according to the amount of labour expended to make and keep them gay and in order. This is not a true ideal, because the preponderating thought of toil outweighs the sweeter thoughts of tranquillity and rest. Another mistake is that a garden is a sort of museum of surprising, quaint, and unusual trees, plants, and objects, as well as of violent contrasts in colour and forms, or a museum of bric-a-brac. All these three ambitions are not necessarily to be excluded from the garden, but each in itself sets forth the wrong ideal of a true garden. The true sentiment of a garden is the primal one—unruffled rest and sweet pure pleasure of mind and body amidst beneficent luxuriance and fruitfulness, amidst the trees good for food and pleasant to the eye, which gratified the soul and every sense of our forefathers.

After giving a philosophical—almost a poetical—thesis on the function of a garden, the lecturer said that in the light of these ideals he would make a few deductions concerning architecture, although at the outset there is a material difference to be noted in the two arts. Architecture has to do with fashioning inanimate materials, such as stone, bricks, marble, wood, metals, and glass, etc., whereas in a garden we have to correlate and order what has life, and growing objects, such as trees, shrubs, and flowers. In the garden, stones and bricks and inanimate things are by-products, so to speak, or accessories and connecting links with the architecture. These items become organic in the scheme of living and growing objects. This is the ideal he would claim for architecture. So to order and dispose all the variety of material, solid and void, that the unified presentment is organic; that the use and purpose as traced through the plan, the elevation, and the details be one growth—this of itself is not sufficient, but each separate building should become organic in the coherent aggregate effect of the street, district, or town.

In the garden the whole theme is made organic by bringing the powers of exuberant inspiration to bear upon a series of fortuitous circumstances and concurrences, marshalling them according to usefulness or beauty, and clothing pure utility with a beauty that bespeaks its usefulness, and yet is in harmony with the organic scheme; this is what one longs to see architecture express, instead of being a playground of individual tastes and caprice of personal preferences and the "accidents of style"—that its products could be taken as concrete examples, making even by fortuitous concurrences for one organic whole.

In nothing is the break clearer seen between the conditions of old life and modern

*Special General Meeting (Alteration of By-Law).*

At a special general meeting summoned by the Council under Bye-law 65, and held Monday, March 3rd, 1913, following the business general meeting above recorded and similarly constituted, the Chairman



than in the former time coherent aspect or collective architecture as contrasted with what we see to-day. From the humblest dwelling to the castle and cathedral there were some connecting links. All these are lost, and on every hand there is rivalry and divorce apparent. I know that we cannot, all of us put together, overturn and revolutionise modern conditions. All that I wish to do is to direct the outlook in this direction—to suppress the ego and what is immediately personal for the aggregate. It is far more difficult to suppress what is individual than to wait and catch the consensus of what is worthily pronounced. In every walk of life and in every profession the "fatuous lurch" for individuality and novelty at all cost, which is the propaganda of to-day, is in the main wrong.

Mr. Mawson illustrated his lecture with a number of lantern slides, and gave many useful hints on garden making, and at the conclusion was accorded a hearty vote of thanks.

#### NORTHERN ARCHITECTURAL ASSOCIATION.

##### *Annual Meeting.*

The annual meeting of the Northern Architectural Association was held last week at Higham Place, Newcastle, Mr. W. Milburn (president) in the chair.

The annual report showed that there were 87 members, 89 associates, and 40 students, as compared with 91 members, 88 associates, and 44 students in 1911.

Mr. W. Milburn was re-elected president, Mr. R. B. Dick vice-president, and Mr. C. S. Errington hon. secretary.

#### DEVON AND EXETER ARCHITECTURAL SOCIETY.

##### *Annual Meeting at Plymouth.*

This society, which embraces the counties of Devon and Cornwall, held its annual meeting on March 8th, at the Central Hotel, Plymouth. In the unavoidable absence of the President, Mr. E. Coath Adams, M.S.A., through illness, the chair was taken by the vice-president, Mr. J. A. Lucas, A.R.I.B.A.

The annual report shows that the membership now stands at eighty. The President's address, which was read by the secretary, strongly advocated Registration:—

"Our Society is in alliance with the Royal Institute of British Architects, and, with all respect to that governing body, I feel compelled at times to ask, Could they not do more, and should they not do more, for us in the provinces? I believe I am correct in saying that the allied societies throughout the country are in favour of Registration; the provincial architects are asking for it, and the majority of architects of the United Kingdom wish for it; yet, as far as the Institute is concerned, we are further from it to-day than we appeared to be this time last year. At our annual meeting we passed a unanimous resolution in favour of registration. A copy of the resolution was forwarded to the Institute. Our only reply is an acknowledgment of receipt. This to me is most unsatisfactory."

A revised scale of charges for the preparation of bills of quantities was presented to the meeting and unanimously adopted. The following officers and Council were elected for the ensuing year: Mr. E. Coath Adams, M.S.A. (Plymouth), President; Mr. J. A. Lucas, A.R.I.B.A. (Exeter), vice-president; Messrs. A. S. Parker, F.R.I.B.A. (Plymouth), Sampson Hill (Red-

ruth), R. Hepworth Arthur (Plymouth), to fill vacancies on the Council of those retiring, as well as those remaining in office, viz., John M. Pinn, L. F. Tonar, T. A. Andrews (Exeter), and the two past-presidents, Messrs. W. H. May, M.S.A. (Plymouth), and James Jerman, F.R.I.B.A. (Exeter), Mr. S. Dobell, hon. treasurer; and Mr. Allan J. Pinn, A.R.I.B.A., hon. secretary (Exeter).

#### SHEFFIELD SOCIETY OF ARCHITECTS.

"The Churches of Caen and Neighbourhood" was the subject of a lecture delivered by Mr. J. R. Wigfull (hon. secretary) to the members of the Sheffield Society of Architects and Surveyors, at the University, on March 13th. Mr. Wigfull gave a lucid account of architectural features of the churches and other notable buildings in the neighbourhood of Caen, his lecture being illustrated by a series of lantern slides from photographs which he took while spending a holiday in Normandy.

#### ARCHITECTURAL ASSOCIATION OF IRELAND.

The last ordinary meeting of the present session of the Architectural Society of Ireland was held last week in the Hall, 15, South Frederick Lane, when the President, Mr. George L. O'Connor, F.R.I.A.I., occupied the chair.

Professor W. A. Scott, A.R.I.B.A., was nominated for the office of President.

Professor L. E. Steele gave a lantern lecture on "The Châteaux of the Loire," describing a journey from Orleans to Nantes

#### ARCHITECTS' BENEVOLENT SOCIETY.

At the annual general meeting of the Architects' Benevolent Society, held in the Rooms of the Royal Institute of British Architects on March 14th, the Council for the new session were elected as follows: President, the President of the A.R.I.B.A.; Vice-President, Mr. Henry L. Florence. Ordinary members: Messrs. T. E. Colcutt, George Hubbard, A. Saxon Snell, W. L. Spiers, Henry Lovegrove, E. Arden Minty, Rowland Plumbe, William Woodward, Arthur Ashbridge, Sidney F. Bartleet, E. Guy Dawber, William Grellier, C. R. Baker King, Andrew T. Taylor, and the President of the Society of Architects. Mr. W. Hilton Nash was re-elected hon. treasurer, and Mr. Percival Currey hon. secretary. Mr. Edward Greenop and Mr. W. Henry White were re-elected hon. auditors. The annual report showed that during the year the sum of £237 10s. was paid in pensions, while £832 was distributed among eighty applicants, comprising architects, architects' assistants, widows and orphans, thus making the total sum expended in relief £1,069 10s. The amount received in subscriptions was £694 10s., while the total income, including carry-over from previous year, was £1,263 13s. 11d.

#### BRITISH SCHOOL AT ROME DESIGN.

On page 307 we reproduce a design by Mr. Walter L. Clark, of Westminster, recently approved in the Open Qualifying Examination for the Scholarship in Architecture at the British School at Rome. The subject set was a private mausoleum on a rocky islet in a lake. The islet was as-

sumed to be any shape or height from the water, but the area covered by it was not to exceed 3,000 sq. feet. The design had to be shown on a single sheet of paper (double elephant) to  $\frac{1}{8}$  in. scale, with  $\frac{1}{2}$  in. details of interior and exterior.

#### R.I.B.A. PROBLEMS IN DESIGN.

The Board of Architectural Education of the Royal Institute of British Architects announce that the designs submitted by the following students who are qualifying for the Final Examination have been approved:

*Subject VII.—Design for a Monumental Staircase and Vestibule to a Large Museum.*

G. Bennett.	G. M. Mackenzie.*
H. C. Bradshaw.*	A. L. Mortimer.*
E. E. Cole.*	E. Musmann.
G. Davidson.*	B. Newbould.*
R. S. Dixon.*	E. B. Norris.
R. Duckett.	A. H. Owen.
W. E. Foale.	A. R. Shibley.*
S. A. Harper.*	S. Stevenson-Jones.
L. S. Henshall.*	A. J. K. Todd.*
F. Jenkins.*	D. P. Trench.*
A. F. Kaltenbach.	R. A. Walter.
F. O. Lawrence.*	A. Wilson.*
H. C. Mason.	W. O. Young.

##### *A Design for a Village Inn.*

P. D. Bennett.	J. MacGregor.
J. W. Bull.	G. M. Mackenzie.
J. A. Clarke.	D. J. Moss.
H. T. Cooksey.	Mary Shewen.
J. C. Farrer.	A. J. Sparrow.
W. S. Foster.	J. O. Thompson.
A. L. Horsburgh.	P. T. Wilsdon.
C. H. James.	R. S. Wilshire.
H. Lidbetter.	A. J. Wood.
E. M. Love.	C. H. Wright.

##### *Subject VI.—A Colonnaded Screen.*

C. J. K. Clark.	A. E. Lowes.
George Crossley.	W. Voelkel.
W. Gougill.	

\* Liverpool School of Architecture.

#### COMING EVENTS.

Wednesday, March 19.

Edinburgh Architectural Association.—Mr. Geo. W. Tulley on "Drainage" (Associates' Paper).

Thursday, March 20, to Monday, March 24.

Architectural Association (Camera, Sketch and Debate Club).—Easter Excursion to Stamford, Lincs.

Wednesday, March 26.

Edinburgh Architectural Association.—Mr. James G. Gillespie on "The Student and Modern Architecture" (Associates' Paper).

Thursday, March 27.

Society of Architects.—Mr. E. W. Harvey Piper on "Winchester Cathedral," at 8 p.m.

Concrete Institute.—Prof. Stephen H. Dixon, M.Sc., M.Inst.C.E., on "Beams and Props for Mines," at 7.30 p.m.

#### NEW BLUE-COAT SCHOOL, BIRMINGHAM.

The Governors of the Birmingham Blue Coat School have acquired a piece of land near the top of Harborne Hill as a site for their proposed new school. The site comprises about seventeen acres, all within the city of Birmingham. There is a frontage of 180 yards to Harborne Road, 110 yards to Metchley Lane, and 295 yards to Somerset Road. The land is well situated, about 525 ft. above the sea level. Designs are being prepared competitively. Provision will be made for 180 boys and 90 girls.



# THE ARCHITECTS' & BUILDERS' JOURNAL.

Wednesday, March 26, 1913.

Volume XXXVII. No. 950.

No. 23.



*(From Piranesi.)*



ST. GEORGE'S CHURCH, BOLTON: VIEW FROM CHANCEL. J. L. SIMPSON, ARCHITECT.

*(See page 323.)*



# THE ARCHITECTS' & BUILDERS' JOURNAL.

MARCH 26, 1913.

CAXTON HOUSE, WESTMINSTER.

VOLUME 37. No. 950.

## Architectural Composition.

THERE is an inspiration in the art of composition which is revealed to the composer alone. In literature, one of its sources is a sympathetic intercourse with the writings of the masters of prose; another is the power of imaginative reasoning. In music, the composer voices the universal speech. In painting, Nature supplies the suggestion. Architecture, the mistress of the arts, is at once the most coy and elusive of interpretation.

Possibly the reason why modern architectural design is often so inherently weak is the relative neglect of the composition of the subordinate parts of individual buildings, as well as a lack of consonance in their assemblage. The designer of to-day not infrequently sets out to design his buildings piecemeal, striving to arrive at an early result without first arming himself with a conception of the completed structure. Composition and design are synonymous terms; both imply the presence of a central and guiding intelligence, a system of unity from which the subordinate parts emerge.

Yet how, then, can the architectural designer begin his work coherently, beset as he invariably is by a thousand and one minor considerations? The answer is to be found not in taking up the pencil and allowing the facility of the fingers to run away with the head, but in the selection of the right motif. Once this important factor is grasped the apportioning of the whole into parts becomes comparatively easy; but should the character of the selected motif prove on analysis to be false, the foregoing procedure must be started over again. Design is something more than a mere matter of instinct and unconscious creative impulse on the part of the architect; rightly regarded, it combines both science and art. It calls for the administration of a mind attuned to the circumstances of each separate problem, the imparting of correct character to every dissimilar structure. It may well be asked, Where can architectural character be studied? Is it to be found in symbolism or in the placarding of buildings with trophies? If the latter, we are more than disappointed, for church and town hall alike have been seen flaunting the same ignoble insignia. Character is the essence of composition, and it can no more be imparted to an ill-conceived building by ornamental symbols than by the winsome legends of library, town hall, etc. Architectural character is organic and essential, and the labelling, either with lettering or by less direct graphic symbolism, is merely supplementary. These things do not give character, but they either emphasise it or detract from it, in accordance with their greater or less affinity to it. Character mainly depends upon mass and proportion, and that relation of parts and forms which we call composition.

Architectural design is the most conservative of the arts: it refuses to change the sedateness of its pace. Even when the designer desires to slip the leash, the very force of the circumstances by which he is surrounded compels the embodiment of the old and well-

tried traditional forms. Usage has determined the shaping of specific structures: style, concomitant with usage, has woven a definite web about them; they have become time-honoured. Failure to blend changed conditions with recognised and established models results in meaningless caricature. We continue the policy of tradition and its connection with the past because there is no alternative. From the study of the noblest buildings which form the background of our daily lives we can deduce character. Herein lies our stock-in-trade, something marketable, something more than transient. We can extend our horizon to embrace the works of other nations, peeping over the Frenchman's shoulder, noting his fastidious methods; or, spurred to greater efforts by the example of our American cousin, we can emulate the sanity of his reasonable architectural policy.

The academic in architectural composition is dependent on the constant exercise of the critical faculty. There must be continual reference to the highest models. A standard of taste must exist by which the value of the latest creations can be attested. The architect through years of study makes himself familiar with the diversity of structures forming the landmarks of style: he then has stored in his imagination a series of motifs to draw upon. When occasion arises a motif suggests itself for the new problem; it is selected, and upon verification with accurate data proves to contain the germ of the character required. Nearly all the masterpieces of modern architecture have been evolved in this manner, a fact which is traceable to the intercourse of nations and the spread of architectural literature.

We have encountered men who look askance at the above methods; they see nothing but imitation in the pursuit of such a course, regarding legitimate borrowing as an unpardonable sin which even reasonable interest fails to mitigate. But they fail to see that individuals cannot change the architectural style of a people in a few years. Architects, designers, and craftsmen are but cyphers, media materially recording the purposes of a movement which very generally owes its genesis to literature.

This failure to understand the generic value of composition, to permit passing fashion to influence architectural representation, irrespective of tradition, is attributable to the present chaotic state of architectural education. The leading schools are fast remedying the defect, and in this regard contemporary architecture is slowly veering round to the academic standpoint; yet sixty years have elapsed since Cockerell's school held sway, and the intervening period has been dark indeed.

Composition in architecture, as in other things, requires a clearness of vision, a definite policy. A mastery of style and an elevation of technique cannot be gained on the spur of the moment. "Art has its boundaries, though imagination has none."

A. E. R.



### The Shop-Front Problem.

THERE is a good deal of cold-drawn common-sense in the letters appearing in last week's and the present issue on the shop-front problem. Our correspondents admit, either expressly or implicitly, that it *is* a problem, and for our part we are by no means constrained to deny that we certainly share that view. Hitherto there has been too sharp a division between the architect and the shop-keeper, each clinging rather desperately to his own particular prejudices; whereas it is clear that, in order to arrive at an effectual understanding, these rival schools of thought must cast away bitterness and seek sympathetically for some rational *modus vivendi*. The Regent Quadrant quarrel is even more important in its significance than in its incidence. It has served to bring to a head an antagonism of interests that is widespread and deeply seated, and this particular clash of opinion will have served an excellent purpose if, in the upshot, it serves to convince the one party that architecture is made for man, and not man for architecture; the other, that not only is this true, but that the truth admits of a businesslike application in the translation of business requirements into terms of architecture. Neither should obstinately refuse to admit that each has something to learn from the other. It is only by approaching it in this conciliatory spirit that the problem can be satisfactorily solved.

### The Question of Wall-Coverings.

A VERY timely paper was that recently read by Mr. Noel D. Sheffield before the Society of Architects on the seasonable subject of wall-papers. It is not too late to be of service in scheming the details of spring renovations, which are not all in furious operation in Easter week, although that is the period when decorators are working double tides. It is, in any case, gratifying to find that this subject is being taken up more seriously by architects, who, with rare exceptions, are apt to leave it too much in the hands of the specialist. The latter, we are sure, would be genuinely glad of a more liberal expression of architectural opinion in the matter. We are not yet very remote from a short-lived period during which, owing to the appalling degradation of taste in wall-paper design, the architect was inclined to give it up in despair, and to recommend that all walls should be painted, rather than papered with monstrous designs which exhaled poison and fostered putrescence. If not entirely prejudiced against paper, he was wont to give his clients some such advice as that which Mr. Sheffield attributes to William Morris, whose name is seldom omitted from any discussion of the subject. Morris is credited with saying, "Have papers with pretty patterns if you like; but if you don't, I beg of you quite seriously to have nothing to do with them, but white-wash your walls and be done with it." That advice evidently antedated the introduction of sanitary washable distemper or water-paint, which many people now prefer to paper, because, while it gets rid of pattern, and thus simplifies choice, it also affords excellent opportunities for the display of taste in colour and tint, and at the same time is beyond all suspicion of noxious emanations or of harbouring uncleanness. Nevertheless, among the vast majority of people paper is infinitely preferred; and of late years the marked improvement in its design, and the exclusion of arsenic from its manufacture, enable the architect to recommend it with a clear conscience. Moreover, he has other resources which his predecessors might well envy him. Wall-coverings are not restricted to paint or paper; and where richness of effect is desired, there is a wide choice of design and material ready to hand. These fabrics, by the way, although apparently representing the most recent form of mural decoration, really hark back to the earliest method of covering

walls—that of hanging them with tapestry. Wall-paper is of comparatively recent origin, and was hardly known in England until late in the eighteenth century, when it began to supersede the wood panelling so familiar in Georgian interiors.

### A Corporation with a Soul!

THE philosopher who observed that corporations have no souls did an injustice to Burton-on-Trent. A corporation that can carry a resolution to employ an architect is thereby entitled to a certificate of exemption from the condemnatory incidence of this hard saying. It is true that the proposal to engage an architect to prepare plans for the erection of stores and office accommodation was opposed, the critics of the recommendation urging that the work might be done by Council officials; but corporations stand or fall by their corporate decisions, and one is only concerned to know that Burton has confuted the heretics and delivered a just judgment on a matter about which town councils are particularly apt to go astray. They usually assume quite confidently that their own official architect or borough engineer ought as a matter of course to do all the architectural work that the Corporation may require; and it is rare and refreshing to find that this heresy is not held at Burton: more especially since it is so short a time after the bland affirmation, as of an axiomatic truth, by a Government Under-Secretary, that the existence of a Government architectural department presupposes that it shall do all the Government architectural work, and would therefore, as a matter of course, design the new Government buildings for Edinburgh. He now knows better.

### A Plea for the Parlour.

IT appears that in their scheme for the provision of working-class dwellings, the Penzance Town Council have accepted the suggestion of a member to build some of the houses without a parlour. On this occasion the real reason for desiring to abolish the parlour was very frankly stated: without this luxury the house could be built more cheaply and let at a lower rent. The great pro- and anti-parlourite question was not discussed, the only approach to it being a statement by a councillor that he had been told by working-men that they preferred to dispense with the parlour. Note that he distinctly said "men," although this is essentially a woman's question. The man so seldom uses the parlour—being expressly warned away from it, lest his muddy boots and toil-stained garments should render it as grimy as the rest of the house—that for him it is virtually non-existent, and he would not miss it if it were abolished. But the housewife clings almost passionately to the one decent room in the house, in which she may exhibit such poor *lares et penates* as her fortunes may afford, and in which the parson, district visitor, or doctor may be fittingly received, and where the occasional family gathering may be decently held. The parlour makes for self-respect, and its merely sentimental value is sufficient to outweigh the baldly utilitarian objections to it which are so often urged. It may be wasteful of space because it is so seldom used; it is often a chamber of horrors with regard to its contents—the wax fruit, worsted flowers, deadly pictures, and other "objects of bigotry and virtue" at which, with rather worse and certainly less excusable taste than that which uglifies the poor little parlour, the superior person sneers—but it nevertheless tends to promote a sense of social obligation which, in the interests of the community, ought to be encouraged rather than repressed. We trust, therefore, that the example of Penzance Town Council may find but few imitators.



## MODERN FRENCH ARCHITECTURE.\*

BY FERNAND BILLEREY.

I SHOULD like to consider the history of modern French architecture as beginning exactly in the year 1665, the date when Bernini, who had started rebuilding the Louvre, was sent back to Italy, and when the French architect, Perrault, appointed in his place, started his famous colonnade. Colbert and Louis XIV. were then giving the *coup de grâce* to French feudalism. Perrault served them well—his colonnade was better than a fine monument, it was the affirmation of that modern principle, the one order, with its accompaniment of the base storey and the possibility of the attic. Raffael had a suspicion of it in designing the Palazzo Vidoni in Rome, and Palladio and Sanmicheli in their various attempts applied it sometimes; but it is at the Louvre that it reached the importance of a principle. Classical designers have lived on that principle ever since. Mansard the younger followed it with possibly less happy proportions at Versailles, and it received a triumphal confirmation when Gabriel built those two gems of buildings on the Place de la Concorde.

*The Early Nineteenth Century.*

Far from following the traditions of the eighteenth century, the art of that period was in the early nineteenth century profoundly despised, or even hated. When the National Library was being enlarged, the Louis XV. work was pulled down with delight; canvas from ceilings painted by Boucher was used to protect floors from plaster and mortar, and it is probably due to the alterations of that period that you possess in the Wallace Collection a wrought iron and bronze staircase railing from that monument. We must not tax these men with vandalism; it seems to be in the nature of men to despise the work of their immediate forefathers. We gladly destroy now Early Victorian work which the next generation will respect. Roman and Greek models, however, soon became insufficient. Italian Renaissance work became also a source of inspiration, although buildings were perhaps no more exactly Italian than they had been exactly Roman.

There has not been in France exactly what is called here a Gothic revival, but a great name dominates the study of the art of the Middle Ages—that of Viollet-le-Duc. To all appearance Viollet-le-Duc failed to obtain practical results from his efforts. He thoroughly failed in his endeavours to reorganise the Beaux-Arts School. His proposed reforms had been sanctioned by Napoleon III., but it brought nearly a revolution, as, during the few lessons he gave, he had to seek police protection for his safety. His own methods of restoration have been condemned since as being too radical, and in the buildings he himself erected he showed that his creative power was not to be compared with his critical power. As to the isolated attempts in Gothic style of his followers, work was never produced to approach in artistic value, as well as in importance, such buildings, for instance, as your magnificent Houses of Parliament.

*The Influence of Viollet-le-Duc.*

The only practical achievement of Viollet-le-Duc has been the creation of those governmental departments—the “Edifices diocésains” and the “Commissions des Monuments Historiques,” which have saved many old French buildings from destruction. Nevertheless, the influence of Viollet-le-Duc has been enormous—being much attacked, he has been much studied, and his captivating writings have been read by every architect. As he professed not merely a

revival of the Gothic forms, but a theory of rationalism and of sincerity towards means of construction old or new, and as at the same time the iron and steel industry was providing new ways of building, these principles have become the dominating preoccupation of French architects. Even such classical designers as Labrouste attempted as early as 1845 to give proper architectural treatment to steelwork. The lecture rooms of the St. Genevieve Library and the National Library are classical examples of these early efforts.

Whilst the nineteenth century was advancing in years, France had been enjoying a fairly long period of peace, during which she recovered from the wars of the Revolution and of Napoleon. She became rich again, and prosperity was at its height during the Second Empire; Napoleon III. was creating a new nobility, chiefly nobility of finance. This new society—which pulled Paris down, replanned it, rebuilt it; which created Biarritz, Nice, and Monte Carlo—required an architecture to express its thirst for pleasure and extravagance. The architects of the period had full opportunities of satisfying it, but the greatest opportunity of all, however, was given Garnier when he built the new Opera House.

*Garnier and the Opera House.*

Garnier, who had been travelling all over Europe studying modern methods of theatre planning, found no better model than that classical French masterpiece, the theatre of Bordeaux, built by Louis exactly 100 years before. Important features were adapted from Bordeaux, such as the main lines of the principal staircase and the ingenious treatment of the cupola on pendentives covering the auditorium; but where the two artists differed, and where Garnier's inclination towards modern rational planning found expression, is in the treatment of the exterior outline of the two monuments. Whereas Louis framed his composition in an unbroken rectangular block, Garnier expressed outside every element of his composition: the foyer and its loggia on the façade, then the cupola of the auditorium, and higher up the stage crowned by the figure of Apollo. The two side pavilions are: one the State entrance, the other the public carriage entrance. Absolute sincerity in distributing the masses so as to express their purpose, joined to a perfect classical unity in the grouping of these masses, this is the modern lesson offered by the Opéra. Other influences were at work; the study of early French Renaissance brought the originality and the richness of treatment of the details—the latest discoveries as to the details of Greek work influenced many motives of decoration—and, last, the theory that colour should not be excluded from the exterior treatment of architecture found expression in the introduction of differently coloured marbles, of bronze, and of gilding.

*Paris Re-planned.*

The re-planning of Paris, elaborated by Baron Haussmann and the engineer Alphand, was perhaps one of the most important architectural undertakings to the credit of Napoleon III. Town planning was not altogether a novelty in France, since towns like Nancy and Bordeaux, formed in the eighteenth century, are classical models which can still be most usefully studied by modern designers; but the modern variety of treatment, the utilitarian considerations, as well as the confident taste shown by the builders of the Second Empire, prove how the old French tradition could well adapt itself to modern needs. What is most remarkable and characteristic of the French taste is how the new work fitted itself to, in fact continued, the schemes

\* Extracts from a paper read before the Royal Institute of British Architects on Monday, March 17th.



begun by previous generations. That extraordinary axle which, starting at the Louvre, goes on westwards for five miles is the work of two centuries. It was not a preconceived plan, as Bernini and Perrault in working out the solution to the awkward centre of the Louvre and Tuileries had certainly no idea that it would form a basis of work for about a score of future monarchs and different political régimes. Each stone added to the development of this axle has been an improvement to it: the Place de la Concorde first—then the Champs-Élysées, then the Arc de Triomphe, the Avenue de la Grande-Armée. To follow it is a lesson in French history; it is also an object of wonder how so many different kings, emperors, republics, municipalities, commissions of improvements, and so on, have all worked with such unity of purpose for the betterment of what had been done before.

#### *Improvements Under Napoleon III.*

Napoleon III. developed the "Quartier de l'Etoile"—planned it as a star the centre of which is the Arc de Triomphe; connected it to the north of old Paris by the Boulevard Haussmann; encircled Paris with a new line of boulevards, and created converging avenues, such as the Boulevard de Strasbourg and Saint-Michel, which, while serving his strategical purpose, gave Paris a circulation without which it would have soon become congested. The creation of the Bois de Boulogne to the west, the Bois de Vincennes to the east, in the centre the Parc Monceau, the Buttes Chaumont to the north, gave healthy lungs to this compact city.

One of the most important monuments France found necessary to remodel and enlarge was the Sorbonne, or University of Paris, of which M. Nénot is the architect. M. Nénot's career is worth recalling. Still a child, he volunteered in 1870 and deservedly won the high distinction most honoured by the French "the military medal." Prix de Rome in 1877, he competed during his sojourn in Italy for the monument which Rome was going to erect to Victor-Emmanuel. Of some 300 competitors he obtained the first prize by sixteen votes out of seventeen. The execution, however, was not guaranteed to the winner, but he was recompensed on his return to France by the building of the Sorbonne. He was twenty-seven.

By degrees, French architects had returned to a purer submission to the French tradition of the eighteenth century, and they had completely come back to it at the time of the International Exhibition of 1900. The Grand and the Petit Palais are no copies of any eighteenth-century buildings; they are each in a different way quite personal, but they frankly illustrate this return to the classical tradition. May I specially point out the staircase of the Grand Palais, not so much as an illustration of the great talent of M. Deglane, but as an instance of the French steel manufacturer's successful efforts in carrying out the most elaborate architectural designs. The whole staircase, including the steps, is of metal. The steel nave is also most elaborate in the architectural treatment of the details. The Petit Palais, a great success in the mind of the Parisian, shows these refined qualities of treatment of the detail which its author, M. Girault, no doubt owes to the influence of his master, the late M. Daumet.

#### *L'Art Nouveau.*

Some architects have made earnest and sincere efforts in the search for a style suited to modern ideas; they are not to be confused with the partisans of l'Art Nouveau. Most of them belong to the small but very learned group of followers of Viollet-le-Duc, and they are headed by no less a man than M. de Baudot, the respected collaborator of Viollet-le-Duc, his successor in fact, as he continues to give at the Musée du Trocadéro the lessons of architecture which Viollet-le-Duc attempted to give at the Beaux-Arts school.

New art, however, has lasted longer in Central Europe. It is there taken seriously, and great hopes are founded upon it.

A vote of thanks to Mr. Billerey for his extremely interesting paper was proposed by Mr. H. H. Statham, seconded by Mr. Edward Warren, and supported by Sir Alexander Paget, Mr. R. Phené Spiers, and Professor Blomfield. Mr. Billerey briefly replied.

### R.I.B.A. PROBLEMS IN DESIGN.

OF the designs for a colonnaded screen which were recently approved by the Board of Architectural Education, we illustrate on page 329 that submitted by Mr. W. Harding Thompson, of Liverpool School of Architecture. The screen was required to be 100 ft. in length, connecting two wings of a building 60 ft. in height.

### MODERN DOMESTIC ARCHITECTURE

AS the second example in our new series of houses we illustrate on page 327 a cottage at Heale, near Salisbury, designed by Messrs. Detmar Blow, F.R.I.B.A., and Fernand Billerey. The cottage, with its irregular thatched roof and whitewashed walls, is a delightful example of modern domestic work; and incidentally it reveals the remarkable versatility of the architects, who are equally successful in the design of classical architecture.

### OUR PLATE.

NO more interesting phase of interior decoration could well be cited than that of which the eighteenth century has left so many notable examples in France, and especially in Paris. A sumptuous portfolio of illustrations of eighteenth-century decorations, of which a notice appears on page 331, has been published in Paris by M. Ch. Massin, by whose courtesy we are enabled to reproduce, as our Centre Plate, some striking details of a chimney-piece in the *grand salon* of the Hôtel Rochecouart, Paris. The detail marks the transition from the profusion of naturalistic ornament, arbitrarily chosen and not very conventionally rendered, to the more restrained use of Classical details. In this example the two styles meet in a most interesting way, but not always quite congruously.

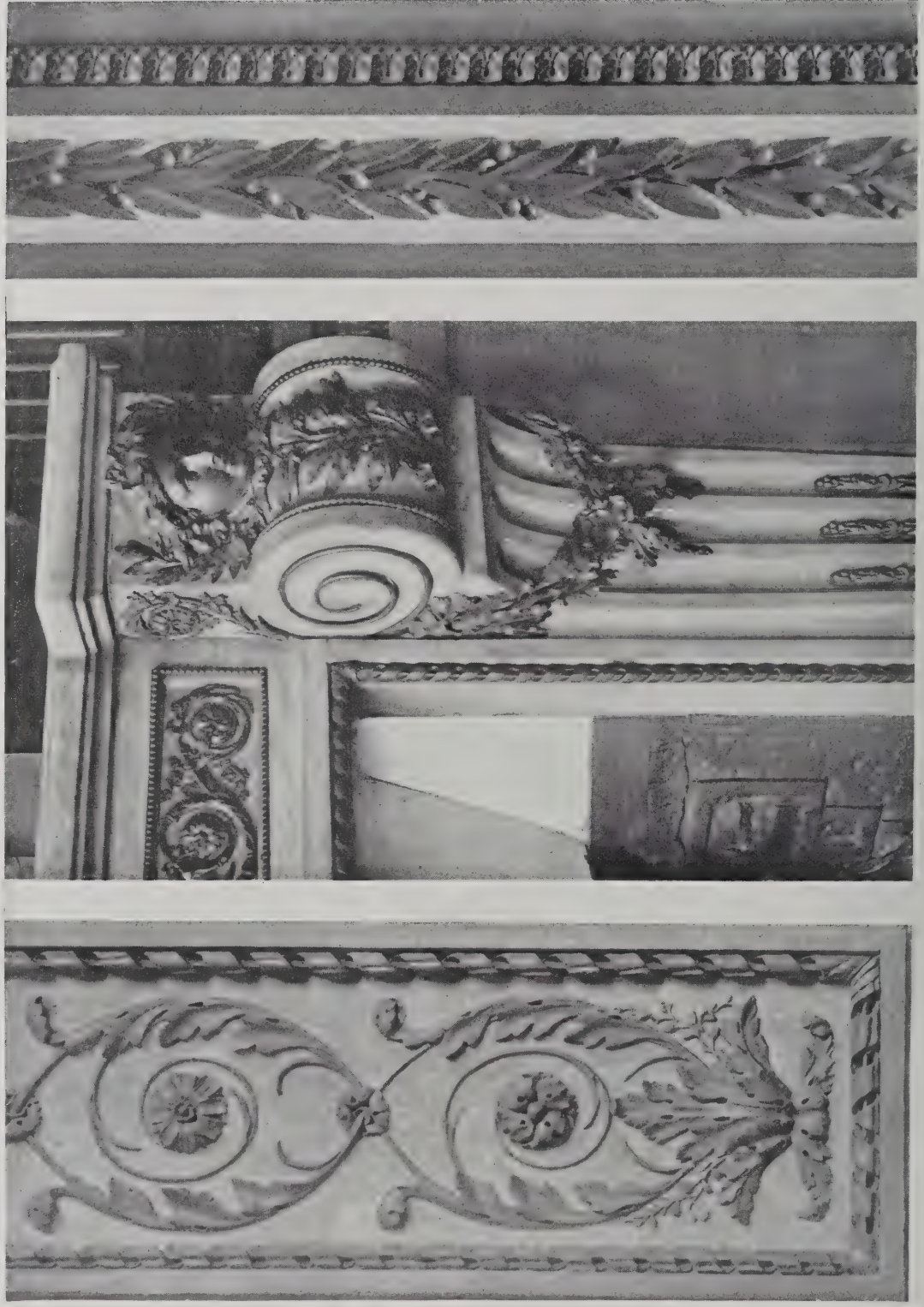
### OUR HOUSE-PLANNING COMPETITION.

WE have much pleasure in stating that our house-planning competition has been almost overwhelmingly popular. More than 400 packages, of an astonishing variety of shapes, dimensions, and materials, have been received from all parts of the kingdom; and seeing that many of these contain more than one set of designs, it is obvious that the assessors are confronted by no light task, and that some little time must elapse before their awards can be announced. We hasten to make this explanation in the hope that it will save competitors and others the unnecessary trouble of writing to inquire when the results will be made known. It is distinctly an occasion for patience. In the meantime we offer competitors our hearty congratulations on the zest with which they have taken up this important subject; and we may perhaps be pardoned for also congratulating ourselves on having evoked so striking a testimony to the widespread influence of the JOURNAL. We need hardly add that, numerous as they are, each and all of the plans submitted will be considered with the most conscientious care, and that the awards will be announced at the earliest possible moment.

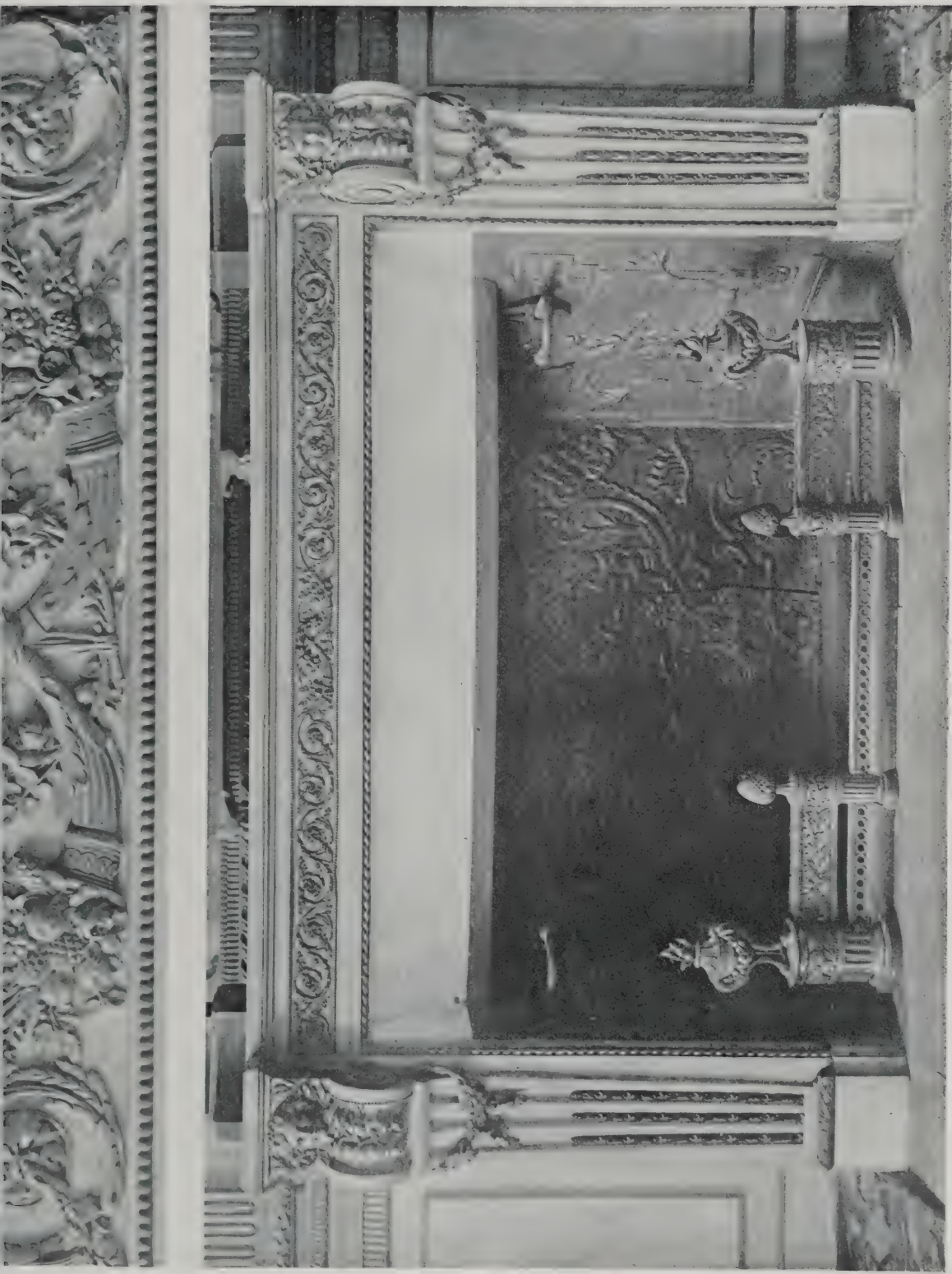




*Supplement to THE ARCHITECTS' AND BUILDERS' JOURNAL, Wednesday, March 26th, 1913.*







CHIMNEYPIECE IN GRAND SALON, HÔTEL DE ROCHECHOUART, PARIS,

(From "*La Décoration des Intérieurs au XVIII<sup>e</sup> Siècle.*")





## OLDHAM TOWN-PLANNING COMPETITION.

THE awards in this competition, which was promoted by Mrs. C. E. Lees and Miss Lees, were, as announced in our issue of February 19th, as follows: 1, Mr. Fred Thorpe, £100; 2, Messrs. C. T. Taylor and Evan Roberts, £50; 3, Messrs. J. Collins and Son, £25. Six designs were submitted, the competition having been restricted to architects and surveyors practising in the Parliamentary borough of Oldham. Professor S. D. Adshead, of the Department of Civic Design, School of Architecture, Liverpool University, the assessor, gave, at the opening of the exhibition of the competitive designs, an interesting review of the subject of town planning in Oldham, with observations on the designs.

After reviewing the history of town planning in Oldham, Professor Adshead said:—

The sets which I have placed first and second show considerable knowledge of the principles of town planning as understood to-day, and the third contains many valuable suggestions, but the sixth, I am sorry to say, practically disqualified himself at the outset by superimposing an entirely new town.

In preparing the conditions of the competition it was clear that certain areas would develop earlier and more rapidly than others, and therefore four such areas were selected for detailed consideration. It is somewhat to be regretted, however, that almost every competitor concentrated his attention upon the development of these areas to the exclusion of any suggestion for the growth of the town as a whole. Only the author of the design which has obtained the third premium has given attention to the whole town. Unfortunately, however, I am bound to state that this scheme as such does not show the careful consideration which the

problem deserves, and had he displayed the same aptitude for planning the whole borough which the authors of the designs placed first and second have done for selected areas, he would have obtained a better place. All the competitors seem to be agreed as to the general distribution of industrial and residential areas, and I think that they are generally well disposed. I think that the whole of the Moorside and Ripponden Road uplands should be reserved as Oldham's future high-class residential district, that factories in the Limeside area should be confined to the neighbourhood of the railway and canal, and that mills in the Roundthorn area should only be allowed on certain selected sites. The author of the design placed first owes his success very largely to the way in which he has made the most of existing features, to the attention paid to the suitable allocation of different types of buildings, and to the economical way in which he has produced an interesting lay-out of streets.

The author of the design placed second, while submitting a scheme which is of considerable interest, and whilst showing an intimate knowledge of town planning in detail, provides generally a more costly arrangement of roads, which, converging too often on centres, produces sites awkward in shape and costly in road development.

The author of the design placed third is to be commended on the ground of having taken some trouble to link up the outlying areas.

In the Limeside area the author of the first premiated design treats the Roman road as a main artery with an interesting approach to Hollins Road, where he correctly places his shop centre; he manages this better than the other competitors. He also provides a good connection with Bardsley from this

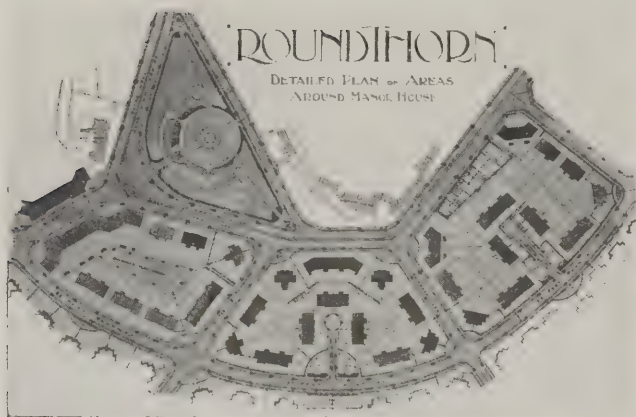
## ROUNDTHORN

## REFERENCE DATA

REF. LETTER	CLASS	RENTAL
A	COTTAGES 18 per acre	4/6 to 5/6
B	Do per acre	5/6 to 6/6
C	Do per acre	6/6 to 7/6
D	VILLAS (pairs) 10 per acre	£22 to £25 yearly
E	Do per acre	£28 to £32
F	DETACHED HOUSES per acre	£35 to £40
G	Do per acre and grounds	£35 to £40







centre. To surround the cemetery with a belt of trees is a nice feature, but I think that a belt 50 ft. wide instead of 150 would serve the purpose. His industrial area and adjacent space for operatives' cottages is well arranged. The author of the second premiated design spoils his Roman Road by obstructing it with a green at the North-east corner of cemetery; he also takes a new main road through the Garden Suburb. It is difficult to see how this could be done now that this area is practically developed. His connection with Hollins Road at Oak Farm is, I think, better than the connection provided at this point by the author of the design placed first. The author of design marked A has coiled his main roads with obstructions and awkward corners, and his circular systems are a little artificial and in many ways indirect. The author of the design marked D manages his main roads in a satisfactory way, but the rest of his lay-out lacks interest, and he has too many cross-roads.

The Roundthorn area bristles with small problems which have proved a severe test of the capabilities of the competitors. The existing entrances to Oldham from this area are poor and need remedying. The treatment of Glodwick Lows, an isolated plateau, calls for some exceptional measures, and improved connections with Lees Road are very desirable. An important question to settle in developing this area is the



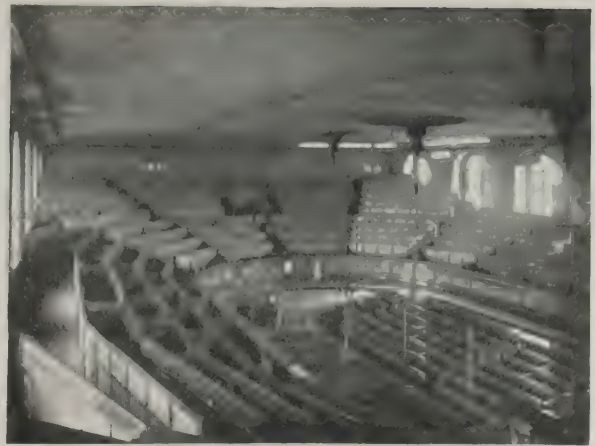
OLDHAM TOWN-PLANNING COMPETITION: FIRST  
PREMIATED DESIGN. F. THORPE, ARCHITECT.

class of residence to be provided. Generally the class suggested is probably too good. I am somewhat surprised that greater effort was not made by all the competitors to get a connection between Abbey Hills Road and Lees New Road, where opportunity for development appears so feasible. Only the author of the design placed third and of design marked D have actually shown any connection. The others, however, so arranged their roads as that such a connection could be made without destroying their schemes. On the whole the author of the design placed first seems to have fallen into fewer pitfalls than the others. He has wisely realised that this area, regarded as a whole, is not so attractively situated as a residential area for the better class as others, and has therefore reserved it generally for cottages and a small type of house and with amenities for recreation which would not prove too costly. His triangular space at the connection of Roundthorn Road and Abbey Hills Road is well chosen. His treatment of Glodwick Lows, though perhaps not so attractive at first sight as that of the author of the design placed second, is at the same time a very good and sensible solution of the problem. His circular road round the south-east side of Glodwick Lows is good, but what I especially commend about the scheme is the proposed continuation of the Snipe Clough reservancy, so as to form a circular connection along the municipal boundary. It would be a splendid addition to Snipe Clough if Oldham could acquire this. The author of the design placed second provides too many public spaces and sites for public buildings, and has treated this area too much on the lines of a suburb instead of as part of the town. He certainly provides an exceedingly interesting scheme, but it would be more costly than that of the winner, and the same criticism applies to it as in the case of the Limeside area—it contains too many round points, and a road cut through the recreation ground would seem to be an impossible feature. The author of the design marked D probably produces the next best solution of this area, but his lay-out does not take sufficient cognisance of the levels and contours. The author of the design placed third has concentrated his interest on local connections with Bardsley and Lees Road. These connections have not had sufficient consideration in detail, and I can only commend them as diagrammatic suggestions.

The Moorside area, on account of its inaccessibility is unexploited and entirely undeveloped, and should at once have restriction placed upon it and be reserved as Oldham's high-class residential area; as such its attractions would be unrivalled. But there are difficulties in its approach from Oldham. Its western slopes can be approached from the Ripponden Road, but to develop beautiful sites lying around the reservoir and in a north-easterly direction there is need for a new tram route. Correctly speaking, much of the best land lies outside the municipal boundary, and it is on the eastern sides of the reservoir that a tram service and drainage should be taken. Almost all the competitors have reserved the steep western slopes of the reservoir as public grounds. The author of the design placed first shows on the whole the best treatment of this area, though the author of the design marked D shows a very sensible treatment of main roads. The second premiated design is too formal for so picturesque a landscape, and his treatment is too self-centred and not sufficiently amenable to the natural beauties of the scenery. The author of the third premiated design is to be commended on having realised the importance of a tram service and the attractions of the eastern slopes of the reservoir. I think, however, that his tram route might with advantage have been kept lower down the hill.

In dealing with the Ripponden Road area I feel that on the whole none of the competitors have managed to produce a very satisfactory scheme. The author of





ST. GEORGE'S CHURCH, BOLTON: VIEWS BEFORE ALTERATION.

the first premiated design has overlooked the opportunities which this area affords for a treatment of parallel cornice roads. Much of the land lying adjacent to the Ripponden Road could be laid out, and there seems to be no insuperable difficulty in connecting it with the Ripponden Road and the tram service already laid down. Probably the author of the design marked A comes nearest the solution of this part of the area. The author of the second premiated design certainly provides a nice treatment for the northern extremity of the site, and I think the best solution for the valley area; his industries fit in well with the contours and with portions of the site which he proposes for reservation. I think that both here and also in the case of the Moorside area competitors might wisely

have given more careful consideration to main roads opening up development, merely indicating tendencies. This would have been more convincing than an attempt to lay out in detail the whole of these huge areas, which cannot conceivably be entirely built over within the next fifty or 100 years.

### ST. GEORGE'S CHURCH, BOLTON.

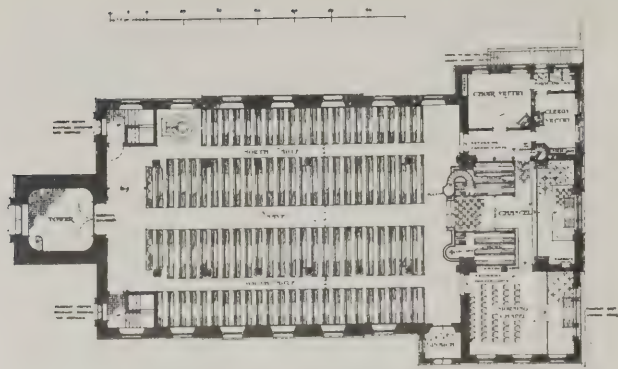
THE work carried out in this church to the designs (selected in competition) of Mr. J. L. Simpson, of Port Sunlight, consisted in a remodelling of an old building, with the addition of new vestries, morning chapel and chancel. The old church, as shown by



ST. GEORGE'S CHURCH, BOLTON: VIEW AFTER ALTERATION, LOOKING TOWARDS CHANCEL.

J. L. SIMPSON, ARCHITECT.





ST. GEORGE'S CHURCH, BOLTON.

the accompanying illustrations, had a large gallery on all four sides, the organ occupying the east end. The roof was in a very bad state of repair, and the ceiling for the full width of the church (60 ft.), was flat. In the work of remodelling the interior the tie-beams and principals were cut away and steel principals fitted under the old backs. The whole of this work was done without uncovering the roof, so that the congregation used the church during the whole progress of the rebuilding, with the exception of the few weeks at the end when the church was redecorated and cleaned throughout. All the fittings and casings are of Austrian oak, those in the chancel being a private gift, as also the pulpit, lectern, and font.

## CORRESPONDENCE.

*The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents.*  
*Correspondents are asked to be brief and to write on one side only of the paper.*

### "The Shop Front of Yesterday."

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—Your article on "The Shop Front of Yesterday" [March 12th, p. 267] is distinctly interesting, and, as you justly put it, "It cannot be expected that modern conditions of shop life should be expressed in the same terms as those which appertained during the reign of the Fourth of the Georges." With the coming of plate-glass and the rise of the large shops, a totally different condition of affairs has arisen; and in the re-building of London now going on, a true appreciation of the requirements of trade and of architecture suitable to trade is desirable. Is the future of our commercial street architecture with relation to the shop front to be a forward or a backward movement, and are the interests of trade and architecture incompatible? To the latter question I would answer, surely not.

The average architect is out of sympathy with the tradesman client, who during the last fifty years, aided by the shop-fitting experts, has evolved the modern shop front, has backed his opinions by hundreds of thousands of pounds, in altering, and rendering suitable for business, premises otherwise of small value, generally of a residential type, such as Regent Street, and knows what is required for his particular trade, whereas the architect, usually speaking, has been out of the swim, is half a century behind the times, has not had the experience of the needs of the present, harks back to a dead past, and, instead of working hand and glove with the client to evolve architecture suitable to the requirements of trade, wishes to force upon the client something which the latter knows is unsuitable; and this leads in many instances to the architect's services being dispensed with so far as the shop-front portion of the building is concerned.

In the ordinary 18 ft. or 20 ft. frontage there is of

course no difficulty; it is where it comes to the 200 ft., 300 ft., or 500 ft. frontage of the draper's shop and the continuity of plate-glass required for the unbroken display of the goods, that troubles the architect, who leaves his building to all appearance standing in plate-glass.

In one instance which you give in your article, "satisfactory alike to the artist and to the shopkeeper," viz., Glave's in Oxford Street, the continuity of the shop front is obtained by the covering of the piers between the shops with shallow glass cases. The same thing is done at Messrs. Wallis's premises, Holborn, and other places, and as the piers show above the cases the construction is visible and the interests of architecture are met.

There is another way, as in many instances in Regent Street, where parts of the upper frontages are set back so that the building is not standing on the shop front at all, and with parts forward in wings, giving a pleasing variety to the elevation as compared with one dead continuation of the wall surface. There is another point. Why put heavy wall surfaces over shop fronts at all, which must be mainly of plate-glass? As the upper parts of streets, such as Oxford Street or Regent Street, must be devoted to show-room or office purposes, where light is of as much importance as on the ground floor, why not lighten the whole upper part, eliminating wall space as much as possible? You have a good instance of this in New Zealand Chambers in Leadenhall Street, a work of the late Mr. Norman Shaw some forty years ago, having bay windows between four bold piers. Imagine a shop front under such an upper part and you have an ideal of architecture and trade requirements.

As an architect who has been largely engaged during the best part of half a century in altering premises for business purposes, I say there is no difficulty in combining the requirements of trade with the ideals of architecture, especially where new streets are being formed and new buildings have to be erected. It simply wants facing in a common-sense way, and it is useless for the architect to contend for large stone pilasters or rusticated piers. These may be all very well for the bank or the public building; for the trader who has goods to sell, or the client who builds to let, they are antiquated, and lead, as may be seen in many thoroughfares, to buildings of high architectural pretensions lying empty and a dead loss in positions that should command premium rentals.

What I should like to impress on my architectural confrères is that however majestic or however beautiful a building may be, if it is not suitable for the purpose for which it is required, it is an anachronism, is no credit to its designer, brings him and his profession into discredit, and is ruinous to his client.

London, W.

JAS. YOUNG.

[This subject is dealt with in a brief editorial note on p. 317 of the present issue. It may here be added that we feel there has been—especially in the earlier stages of the controversy over the Regent Street Quadrant—rather too much in the nature of dogmatic assumption on both sides, and we gladly welcome the more philosophical tone which is now being adopted. —EDS. A. AND B.J.]

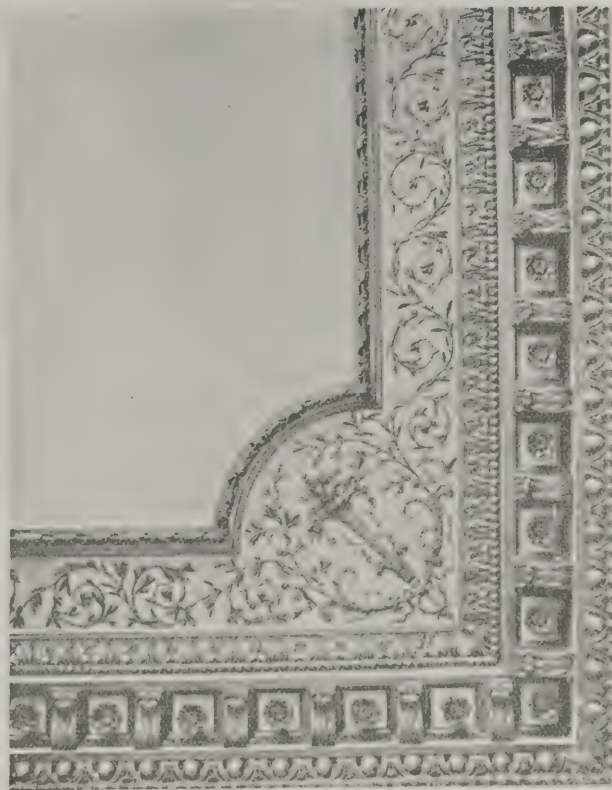
### *The Strength of Camber Arches.*

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—I fail to see that L. E. W. [March 19th, p. 297] has succeeded in proving that the shaded portion of the "camber arch" in Fig. 1 is not extraneous. The arch which he built, shown in Fig. 2, contains an invisible arch in the portion which had been extraneous in Fig. 1, and it was here again, in Fig. 2, purely by virtue of the invisible arch, that it sustained the load which L. E. W. put upon it.

R. W. C.





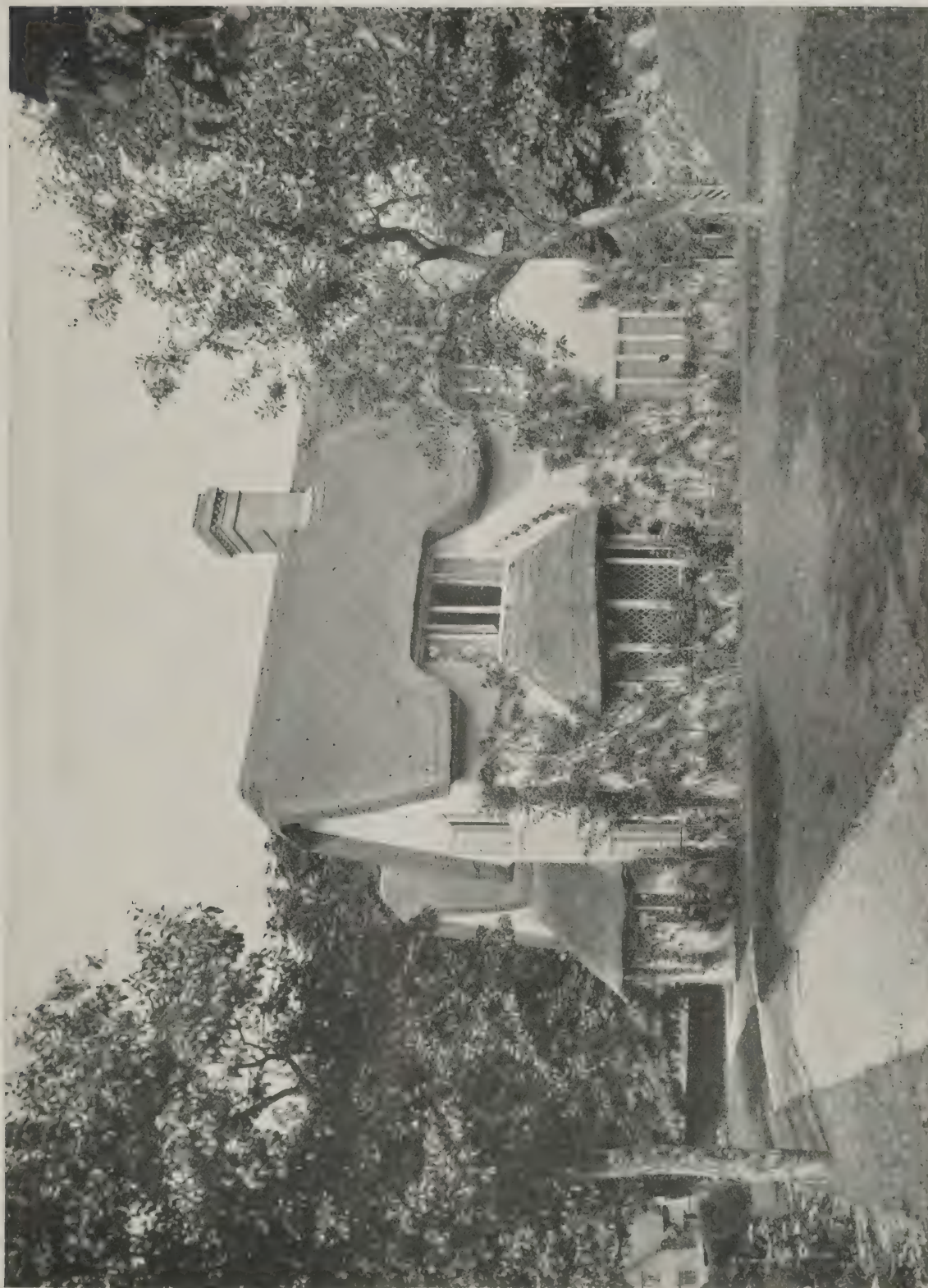
HÔTEL DE ROCHECHOUART, PARIS: DETAILS FROM GRAND SALON.

(From "La Décoration des Intérieurs au XVIII<sup>e</sup> Siècle.")

(See page 331.)





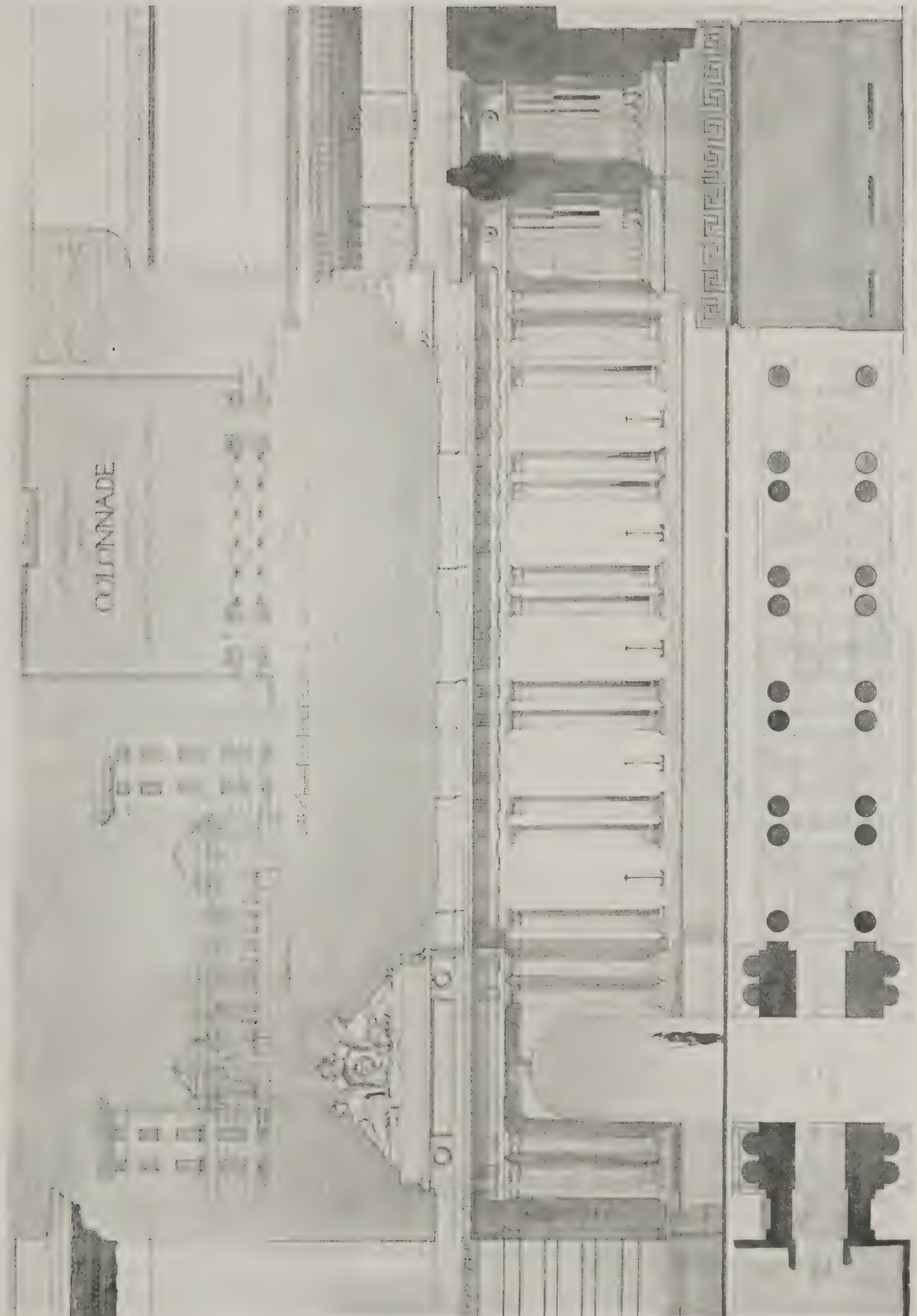


MODERN DOMESTIC ARCHITECTURE. II.—COTTAGE AT HEALE, NEAR SALISBURY.

DETMAR BLOW AND FERNAND BILLEREY, ARCHITECTS.







TESTIMONIES OF STUDY FOR R.I.B.A. FINAL EXAMINATION: APPROVED DESIGN. SUBJECT VI. (a). BY W. HARDING THOMPSON.  
(See page 320.)

# MODEL ANSWERS TO R.I.B.A. EXAMINATION QUESTIONS.

BY G. E. FRANCIS.

(Continued from page 307, No. 949.)

## INTERMEDIATE EXAMINATION.

THE PRINCIPAL STYLES AND GENERAL HISTORY OF ARCHITECTURE, AND THE PURPOSE OF ARCHITECTURAL FEATURES IN RELATION TO THE BUILDINGS IN WHICH THEY OCCUR.—(Continued.)

Time allowed, three hours.  
Not more than three questions were to be answered.

### Question 6.

Describe and illustrate one of the earlier colleges at Oxford or Cambridge. Give the ground plan and detailed sketches of the principal parts of the buildings.

Answer.—Trinity College, Cambridge, was founded in 1546 by Henry VIII., who incorporated nine existing houses.

The Great, or Old Court (the largest in either of the Universities), is entered through the King's Gate, a sketch of which is given.

Much of the north side of the court is occupied by the chapel, the entrance porch of which is shown in the sketch.

In the middle of the western side is the Hall, a typical example of an Early Eng-

lish house. It has the usual distribution of the dais and bay windows, with the screen at the other end of the room.

In the steep and lofty roof is a lantern representing the old louvre, through which the smoke escaped from the great central fire.

A passage (through which Neville's Court is entered) separates the hall from the kitchen and buttery, etc.

Neville's Court is surrounded on three sides by cloisters, over two of which are students' rooms.

The other side is occupied by Sir Christopher Wren's magnificent library block. (See sketch plan.)

### Question 7.

Sketch the main front and a plan of a typical Venetian sixteenth-century palace. Describe briefly what you consider to be the qualities which give it individuality.

Answer.—The Palazzo Grimani, Venice, A.D. 1550. Michele Sanmicheli, architect. Probably his greatest work, although carried out by others after his death.

The bottom storey is magnificent, but the two upper storeys are not so good

owing to their comparative lowness and sameness of detail.

The balustrade contributes to the squatness of the first floor by cutting off the actual height of the arch orders.

The grouping of the windows in the middle is typical of Venetian work, the whole presenting a composition only to be found in Venice.

### Question 8.

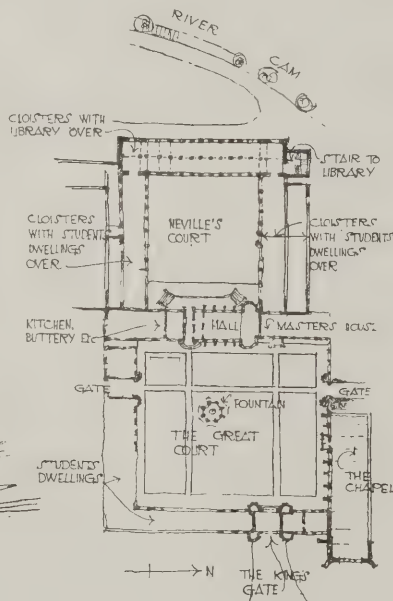
Write a short treatise upon the history and characteristic qualities of French Renaissance architecture up to the middle of the sixteenth century. Illustrate your account with sketches of the typical design of the period, and mention the architects associated with the principal buildings.

Answer.—The invasion of Italy by Charles VIII. in 1494, and by Francis I. in 1527 mark the distribution of Italian artists and workmen over Europe, and more especially France. Cellini, Serlio, and Vignola were the most important of these.

The first half of the sixteenth century was a period of transition in which Renaissance details were grafted on to Gothic



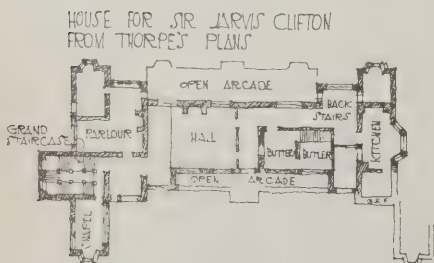
ENTRANCE PORCH TO CHAPEL



Question 6.

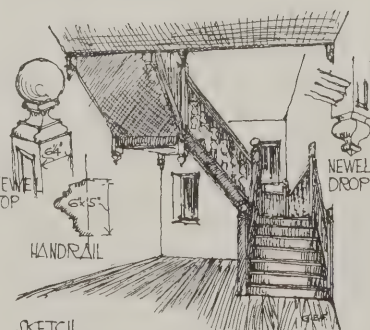


THE KING'S GATEWAY.  
VIEW FROM GREAT COURT

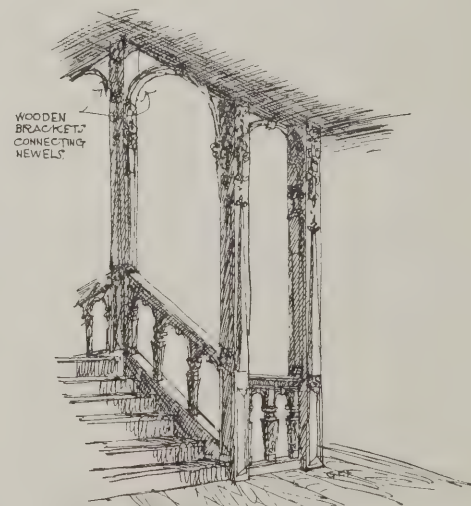


HOUSE FOR SIR JARVIS CLIFTON  
FROM THORPE'S PLANS

### Question 9.



SKETCH  
SHOWING GENERAL ARRANGEMENT  
OF STAIR, TYPE 1.



SKETCH  
SHOWING PORTION OF STAIR, TYPE 2.

HAMBLEDON OLD HALL  
RUTLAND.



PLANS SHOWING POSITIONS  
OF STAIRCASES IN  
RELATION TO ROOMS.

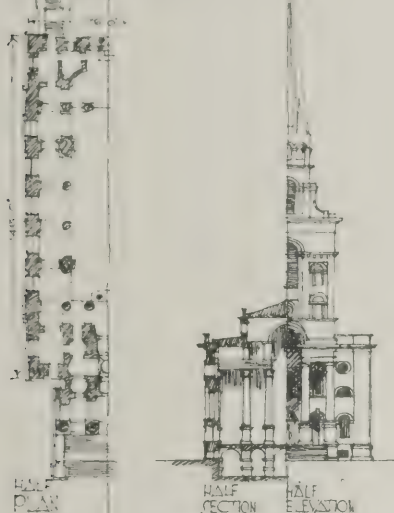


PALAZZO GRIMANI, VENICE  
MICHELE SANMICHELI ARCHT.

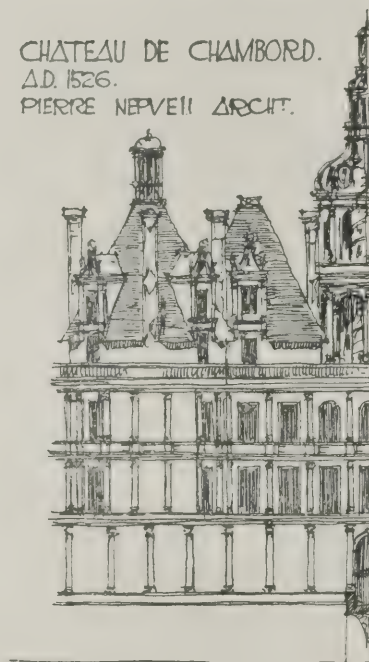
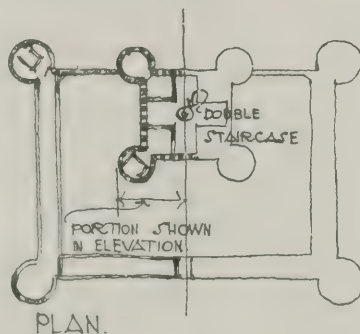
HALF ELEVATION PLAN

Question 7.

THE LOUVRE, PARIS.

PORTION OF FACADE  
A.D. 1546.  
PIERRE LESCOT, ARCHT.CHRIST CHURCH  
SPITALFIELDS  
A.D. 1714-1729  
N. HAWKSMOOR ARCHT.

Question 10.

CHATEAU DE CHAMBORD.  
A.D. 1526.  
PIERRE NEPVEU ARCHT.HALF ELEVATION OF  
CENTRAL PORTION.

PLAN.

Question 8.

forms. The principal buildings were erected in the country, mostly on the banks of the Loire, the Château de Chambord, A.D. 1526, by Pierre Nepveu, being a typical example. Here are found the traditional Gothic towers of defence, roofed with slate-covered cones, broken up where possible by rich dormers and tall chimneys, all infused with Italian detail, giving the building its characteristic confusion and richness of sky line.

The smallness of scale in regard to mouldings, the flatness of the projection of the pilasters, the Gothic feeling throughout the design, especially in the high-pitched roofs, the ornamental chimneys and vertical treatment of features, render this example one of the most characteristic of Early French Renaissance buildings.

The Louvre, Paris, was commenced in 1540 by Pierre Lescot, and shows marked Italian influence. The lower order is Corinthian, and the upper of composite pilasters, with an attic storey above. The sculpture work by Jean Goujon is noteworthy.

## Question 9.

Describe and illustrate two typical examples of an oak staircase in a sixteenth-century English house. Sketch the plan of the house, showing the position of the staircase in relation to the general arrangement of the rooms, and supplement your answer with observations upon the influences affecting the design.

Answer.—Stairs early in the sixteenth

fusion which took place in the seventeenth century.

Regarding the stairs in detail, there were two main variations:—

(1) There were the stairs constructed in a quadrangular compartment, with a well of considerable size in the centre, and having detached newels. Hambledon Old Hall, Rutland, is a good example of one of the smaller houses of the period, and contains this type of stair. The plan is of the usual type, the hall dividing the family apartments from those used by the servants.

(2) This type of stair was constructed in oblong spaces, either with single newels, or with newels coupled together with wooden arches or brackets. A house by Thorpe for Sir Jarvis Clifton contains this type of stair, and indicates the disposition of the rooms both in relation to the stairs and as regards the family and servants' apartments.

## Question 10.

Mention three examples of churches built in England between 1700 A.D. and 1800 A.D. Sketch the plan, elevation, and section of one of the examples, and state what you consider to be the influences governing the design.

Answer.—Three churches erected in London during 1700 A.D.-1800 A.D. are:—

St. Martin-in-the-Fields, 1721-1726, James Gibbs, architect; St. George's, Hanover Square, 1720-1724, John James, architect; Christ Church, Spitalfields, 1714-1729, N. Hawksmoor, architect. The last named is depicted in the sketches. The architect, Hawksmoor, was largely influenced by Wren and Vanbrugh. Born in 1661, Hawksmoor, from the age of sixteen, assisted Wren until 1702, after which he aided Vanbrugh at Castle Howard. His manner was thus derived from two very different sources, and the influences of Wren and Vanbrugh appear in his work not always in perfect fusion. From Wren he learnt his technique, and acquired a mastery of architectural detail far beyond the limited knowledge of Vanbrugh. His efforts after simple size and constant ambition to pile up great masses of masonry must be attributed to his association with Vanbrugh.

Christ Church is a good example of his work. The extremely impressive effect of the steeple is due to purely architectural qualities, i.e., there is no carving or ornament on the tower, which depends solely on its proportions and disposition of planes.

## SOME EIGHTEENTH - CENTURY FRENCH INTERIORS.

Those who hold that the art of the decorator has been dormant since the days of the Empire may affect to find, in a portfolio that, while dealing only with the interiors of the stately historical mansions of the Faubourg Saint-Germain is nevertheless sufficiently representative of the French decorative art of the eighteenth century, some confirmation of this pessimistic view. We have been often told, in varying phraseology, that "traditions of decorative treatment which passed from Egypt, and from Mesopotamia into Greece and Italy, and which, strengthened by Hellenic influence, were perpetuated by the Roman domination so strongly that they survived the chaos of the earlier Middle Ages, being aided therein by the continued existence of the Empire centred at Constantinople—those traditions, which are traceable in no uncertain way through the Gothic epoch, through the epoch of the Renaissance in Italy, and through the succeeding styles of the sixteenth, seventeenth,



and eighteenth centuries, seem finally to have perished soon after the close of the Napoleonic wars." From that time onward, we are often asked to believe, the decorator has become a mere adapter of details; or, alternatively, that, having lost the art of conventionalising floral and foliated forms, he prefers—especially in France—to fill his space with human figures; or, where these are not applicable, to occupy it with "unmeaning scroll patterns, waves, ripples, zigzags, and flame-like and cloud-like forms."

The indictment is not wholly true. Tradition never really perishes; it may be said to survive even in the most violent revulsions from it, as when a period of excessive exuberance is the direct cause of a rebound to the opposite extreme.

Something of this reaction is evident from the most casual glance through the sumptuous portfolio of examples of Paris hotel interiors of the eighteenth century which is now before us. From most of the thirty-six exquisitely produced "phototypie" plates comprised in the portfolio, one derives the impression that, at the important period which they represent, decoration was not a subordinate but a dominant consideration—an object *per se*. Spaces were filled—occasionally overloaded—with detail, which, interesting enough on analysis, is almost overwhelming in its general effect. The assemblage of leaves, fruits, flowers, ribbons, feathers, is always deftly symmetrical, and the resultant pattern is adapted to its space with amazing dexterity and cunning—obviously upon the theory that blank space must never obtrude, and must only be allowed to appear at all as a set-off to elaborately designed ornamentation: pattern must preponderate; its units or elements must be interesting in themselves, and not merely be component parts of a general design. Gradually this view declines. After a surfeit of elaboration, it is only the cornices and head-spaces above doors and chimney-pieces that are at all laboriously decorated, and these neither so lavishly nor so laboriously, a few carelessly carved festoons serving for relief; while the door and wall-panels are left plain, save for an elegant framing or bordering, with perhaps a small enrichment at apex and base.

This growing restraint, or revolt from profusion, is further and more decisively marked by the subsequent almost complete abandonment of floral motifs in favour of classical ornaments, at first introduced rather lavishly, but afterwards used with meagre austerity, and sometimes repeated with the dull mechanical regularity and precision of modern stencil patterns, as, for instance, are the wreaths which occupy a dozen square panels in the grand salon of the Hôtel Loménie de Brienne.

A more spirited, profuse, and spontaneous use of Classical details is seen in the accompanying reproductions of plates illustrating work in the Hôtel de Rochecouart. These, indeed, tend rather towards the opposite extreme; the richness of effect, while valuable as showing the capacity of Classical details, and their pliant adaptability to manifold situations and purposes, and to varying materials, nevertheless coming as something of a shock to one's preconceptions of the chaste severity of Classical decoration. The work is, of course, of late eighteenth-century execution, the Hôtel de Rochecouart having been built by Cherpitel, apparently some time after 1776, when Mme. de Courteilles, then a widow, acquired the ground, which had formed part of the gardens of the old convent of Bellechasse. On the death of Madame Courteilles, the property passed

to her daughter, who had married the Comte de Rochecouart. She sold it to Maréchal Augereau, Duc de Castiglione, and in 1829 it passed from his duchess to the University of Paris, and is now occupied by the Minister of Public Instruction, and while the interior has been largely modified for this service, the *grand salon*, with its fine array of Corinthian pilasters with gilded decorations, has been left intact.

Ten hôtels are represented in the thirty-six plates comprised in this handsome portfolio, namely: Roquelaire (Jean Cailleteau, architect: six plates), Rochecouart (Cherpitel: five), Rue de Bellechasse (architect unrecorded: two), Brancas (Pierre Bullet: one), Lassay (Jean Cailleteau: four), Ecole Militaire (Jacques-Ange Gabriel and Brongniart: three), Noirmontiers (Jean Courtonne, architect Jean Cailleteau designing decorations: three), Belleisle (Libéral-Michel Bruand or Bruant: two), 6, Place du Palais-Bourbon (architect unnamed: two), Chatelet (Cherpitel: two), Loménie de Brienne (partly by Aubry: two). These plates afford an admirable means of studying a most interesting period of decorative treatment that is in the main architectural; the work shown consisting chiefly of specimens of wood-carving and gilding, although plasterwork, and cast and wrought metal work, are also represented, and painting—pictorial as well as ornamental—is, of course, plentiful. Paris, with all its turmoils and vicissitudes, is far richer in such treasures than London; and publications like that under notice serve not only to please and instruct, but, in a sense, to preserve work that in its concrete form may, alas! perish utterly in an hour. Our Centre Plate, and the illustration on p. 325, are, by permission, reproduced from this portfolio.

La Décoration des Intérieurs au XVIII<sup>e</sup> Siècle. Motifs d'Architecture, de Sculpture, et de Peinture exécutés sous les Epoques Louis XV., Louis XVI., et Empire. Choix de Documents inédits recueillis dans les Anciens Hôtels de Paris. Le Faubourg Saint-Germain. Paris: Librairie Générale de l'Architecture et des Arts Décoratifs: Charles Massin, Editeur, 51, Rue des Ecoles. 36 plates, 17½ in. by 12½ in. London: Technical Journals, Ltd., Caxton House, Westminster, price £2 2s., post free.

### "The Year's Art, 1913."

Even the serene domain of art is not without its sensations, which are always faithfully chronicled in "The Year's Art." Last year's volume bewailed the loss of Leonardo's "Monna Lisa" from the Louvre; and the most exciting tragedy-comedy of 1912 is also supplied by France. "The super-sensation capturing the imagination was that scene in a Paris sale-room when a painter was alive to see the market go mad over a picture which he had once sold for £20. None but Degas has lived to see his picture bring £19,100 after a riot of bidding." The review of the past year with which the editor prefaces his very useful annual is always highly interesting, even when "sensations" fail him; and the volume, with its careful account of all the important art institutions, including clubs at home and abroad; its illustrated record of the exhibitions, sales, and other art happenings of the year; and its directory of artists and art workers, is a very useful conspectus of the art-world of today. A handy calendar, studded with useful and interesting art memoranda, is included. This is the thirty-fourth annual issue.

"The Year's Art, 1913." With full-page illustrations. Compiled by A. C. R. Carter. Pages 598 + 60, 7½ ins. by 5 ins., price 5s. net. London: Hutchinson & Co., 34, Paternoster Row, E.C.

### "Architectural Association Sketch Book."

Seventy-two plates are comprised in the first quarterly part of the "Architectural Association Sketch Book, 1912," which has just been issued. They represent a selection of R.I.B.A. prize drawings, and very few of them can be said to exceed the average merit of such productions. Of mere skill in drawing there is ample evidence, but of architectural or artistic feeling the manifestations do not greatly abound; and, indeed, to expect any very rich display of this rather rare quality would be to make a too-exacting demand on a portfolio of this kind.

Among the plates that have given us most pleasure by their revelation of something superior to mere mechanical dexterity, yet including this quality, is that by Mr. Alick G. Horsnell showing details of the new sacristy at San Lorenzo, Florence. The merest sketch, it is nevertheless vigorous and spirited, and is also rather valuable as a good instance of economy of effort. An example of accomplished draughtsmanship combined with artistic feeling is Mr. Leslie Wilkinson's "Staircase and Vestibule of the Mediceo-Laurentian Library, Florence." His "Detail of the Façade of the Palace of Charles V. at the Alhambra, Granada," shows how a mere sheet of details may be invested with more than professional interest, and similar qualities are conspicuous in Mr. A. E. Henderson's "Mosque of Sultan Suleiman, Stamboul"—a quite masterly perspective view. Mr. C. Wontner Smith's sketch of the Salute, Venice, combines pictorial grace with architectural interest. Mr. Noel H. Lever's measured drawing of a staircase in the Victoria and Albert Museum may be included in the same category, as the subject gives opportunities for pictorial treatment on which the draughtsman has expended a good deal of labour, and not in vain. Other outstanding examples are—Mr. Gerald Horsley's Wells Cathedral front, which is somewhat lacking in "values"; Mr. Walter M. Keesey's "Church of Santo Spirito, Florence," which is bold and dashing, but, as the defect of these qualities, is a little too obscure in detail; Mr. Piet de Jong's Italian drawings, which show a good deal of individuality, but in some instances are rather coarse and laboured; and Mr. J. Hubert Worthington's Italian studies, which show more delicacy but less vigour; and one can hardly expect to have it both ways.

There are a few other highly creditable drawings which cannot now be noticed specifically, although we are disposed to make exception in favour of Mr. J. H. Odom's clean elevations and sections of the Senate House, Cambridge; and Mr. Arthur B. Allen's clever and painstaking rendering of the Octagon, Ely Cathedral—a difficult subject attacked with as much success as courage.

In the index to the portfolio, it appears that Greenwich is in Surrey. (This is a news item which will hardly be confirmed in West Kent.) We notice also that on the drawing of the Admiralty Screen, Whitehall, the architecture is attributed to "Robert Adams." Who was he? We had hoped that this most persistent of "vulgar errors" was confined to the laity.

"Architectural Association Sketch Book, 1912." First Quarterly Part, containing a selection of the R.I.B.A. Prize Drawings. Edited by C. C. Brewer, Theodore Fyfe, W. Curtis Green, and H. A. Hall. London: The Architectural Association, 18, Tufston Street, Westminster. Issued in four quarterly parts, at a subscription of one guinea per volume of 72 plates.



# CONCRETE AND STEEL SECTION.

(MONTHLY.)

## SHEAR STRESS IN REINFORCED CONCRETE BEAMS.

BY PERCY J. WALDRAM, F.S.I., M.C.I.

(Concluded from page 233, No. 946.)

### Diagonal Tension.

The effect of the diagonal component of the vertical and horizontal shear can be met either by introducing loose or fixed stirrups, or by bending up the horizontal tensile reinforcement to follow the lines of tensile stress. As it is seldom feasible to bend up a sufficient number of bars to protect the whole of the concrete subject to diagonal tension or to bend them to the theoretical curve, a combination of stirrups and bent up bars is not uncommon.

Because concrete will stand say 250 lbs. per square inch under pure shear, it is assumed in the R.I.B.A. reports that floors and beams subjected to no greater vertical or horizontal shear than 60 lbs. per square inch need no shear reinforcement; and that reinforcement against greater shear stress may be credited with that amount as representing the active capacity of the concrete. Test beams, however, usually show diagonal tension cracks when the calculated intensity of horizontal shear reaches 100 lbs. per square inch. It would therefore appear that the limit of capacity of the concrete should be placed no higher than 25 lbs. per square inch, horizontal, and that it should be neglected altogether in large, heavily loaded beams where the conditions may not be comparable with those in test beams.

### Calculation of Shear Reinforcements.

The usual method of calculating shear reinforcements is to take a short length of girder next the bearings, calculate the horizontal shear acting over that length, and introduce enough metal in the form of vertical or inclined members or bent up tensile reinforcements, or both, to resist it, either alone or with the assistance of the concrete. If, as is generally the case, the designer is limited in his choice of available shear members, the process is inverted and the calculations are arranged to give that length of girder next the bearings over which is generated the amount of shear which the given shear member can be trusted to deal with. The correct spacing of similar shear members throughout the girder can then be determined from the bending moment diagram as previously explained.

When the shear reinforcements are inclined at an angle of  $\phi$  with the horizontal, the area which they present to pure horizontal shear is increased in the proportion of 1 to  $\csc \phi$ .

The vertical or inclined shear members are not only called upon to resist pure horizontal shear (and if fixed to the tensile reinforcing rods, to relieve the adhesion stress between the latter and the concrete) they must operate to relieve the concrete of the diagonal tension which generates the horizontal shear. They would do so most efficiently if they were bent back to the varying inclinations of the force lines Fig. 4. This is impracticable, but the loss of efficiency incurred by meeting a diagonal stress by a vertical member is immaterial, because the cross section of the

shear members being calculated to resist shear at 12,000 lbs. per square inch has an available margin of 4,000 lbs. with which to resist direct tension at 16,000 lbs. per square inch, and at the ends, where the shears are most active, their correct theoretical position would be nearly vertical.

### Effect of Bending up Tensile Reinforcements.

If the tensile reinforcements were all bent to the curve of the bending moment diagram, as in an ordinary inverted bow-string girder, theoretically no horizontal shear is generated, the diagonal tension being in this case identical with the stress in the inclined or diagonal flange. If any bars are so bent up they can be credited with the ability to similarly pick up part of the vertical shear direct as flange stress.

The amount of vertical shear thus dealt with in the form of direct tension  $x$  in a bar bent up to an angle  $\phi$  with the horizontal can be taken as  $x \sin \phi$ .

In the example shown in Fig. 7, a beam 10 ft. span is presumed to be carrying a total distributed load of 50,000 lb. (23½ tons), the shear at each bearing being 25,000 lb. The cross sectional area of concrete available to resist this in pure vertical shear would be  $b \times a$ . By ordinary

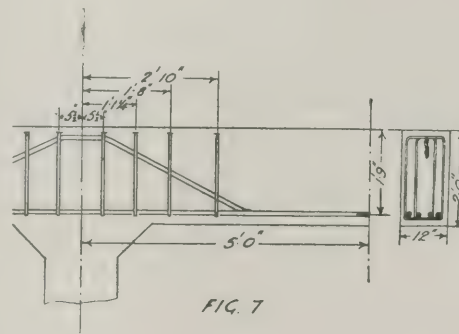


FIG. 7

calculation the value of  $a_1$  is found to be .885, and of  $a = d \times a_1 = 21 \text{ in.} \times .885 = 18.6 \text{ in.}$  The direct vertical shear which can be allotted to the concrete (being pure shear) would therefore be  $18.6 \text{ in.} \times 12 \text{ in.} \times 60 \text{ lb. per sq. in.} = 13,320 \text{ lb.}$ , leaving 11,680 lb. to be resisted by horizontal rods, necessitating  $\frac{11,680}{12,000} = .975 \text{ sq. in.}$  of section.

The rods running into the bearings are obviously sufficient for this.

Two ¾ in. rods are bent up at an angle  $\phi$  of 2 to 1 or  $26^\circ 34'$  and reduce the capacity of the vertical shear for generating diagonal tension by  $16,000 \times 2 \times .442 \times \sin 26^\circ 34'$  (or .447) = 6,295, leaving  $25,000 - 6,295 = 18,705 \text{ lb.}$  vertical shear to be dealt with, equivalent to a distributed

load ( $w$ ) of  $\frac{37,410}{120} = 311.7 \text{ lb. per inch}$  run of beam.

Presuming that the shear members decided upon are double loops of ¾ in. bar, giving a cross sectional area of .42 sq. in. in the four arms, the spacing of the first stirrup can be determined from the formula for the bending moment developed in a distance  $x$  from the bearing  $\frac{xw}{2} (1 - x)$ , as follows. The shear de-

veloped in length  $x = \frac{xw(1-x)}{2 \times 18.6}$  which must equal .44 sq. in.  $\times 12,000 = 5,280 \text{ lb.}$  or  $120x - x^2 = \frac{5,280 \times 37.2}{311.7}$   
 $x = 5.5$

This method involves the solution of a quadratic equation, and for practical purposes it is sufficiently accurate, and a little safer, to obtain the distance  $x$  by dividing the end shear by the lever arm to obtain the intensity of vertical shear per inch of depth of lever arm; then to assume that the intensity of horizontal shear per inch run of span is equal to this, and to divide it into the strength of one set of stirrups in order to obtain the number of inches which that set can deal with, or:

$\frac{18,705}{18.6} = 1,009 \text{ lb. vertical shear per in.}$   
run of lever arm.

$x = \frac{5,280}{1,009} = 5.3 \text{ ins.}$

Say  $x = 5.5$

$\frac{x}{\frac{1}{2}l} = \frac{5.5}{60} = .092$

Referring to Table A, page 234, it will be seen that four stirrups will be required, situated at:

No. 1. 5.5 in. from the bearing.

No. 2. =  $60 \times .225$ . 13.25 in. from the bearing.

No. 3. =  $60 \times .368$ . 22 in. from the bearing.

No. 4. =  $60 \times .553$ . 34 in. from the bearing.

It will be noticed that in the above calculation the strength of the concrete in shear is neglected, but on the other hand no allowance is made for the increase of shear intensity at the neutral axis. Allowing 25 lb. per square inch for concrete in shear the former would amount to  $12 \times 5.5 \times 25 \text{ lb.} = 1,650 \text{ lb.}$ , and would reduce the stress in each stirrup in the proportion

of 1 to  $\frac{18,706 - 1,650}{18,706} = .865$ , whereas

the latter would tend to increase it in the proportion of something less than 1 to 1.5, a net increase of about 25 per cent. As we are resisting the shear with metal this is perhaps negligible, but in the case of slabs without shear reinforcements it might be a serious matter.

Fig. 7 shows the result of the usual application of the theory, but as the end shown is obviously fixed, it would be preferable to determine the point of contraflexure and design the shear stirrups as for a half beam hanging on a cantilever.

When comparing the detailed results of deflection and breaking tests upon similar beams made with varying types of shear reinforcement, the writer has been struck with the advantages which appear to attend the use of reinforcements which encircle the compression area of concrete.

The advantages of hooping concrete in compression are well known, and without expressing partiality for any particular system, it would appear to be desirable that the relative advantages, to the beam as a whole, of fixed and unfixed, hooped and plain, shear members should be carefully watched by all those interested in the subject.

### AN EXAMPLE OF CHEAP SCHOOL CONSTRUCTION.

Consequent on the Departmental inquiry and report on school construction, educational authorities are everywhere keenly alert for greater economy in school building, and they, as well as architects, will welcome the present contribution towards the solution of this important problem. It will be remembered that the inquiry had special reference to, and the report recommended, the use of more modern materials of construction, and from the

following description of a new-type school designed by Mr. Haydn P. Roberts, F.R.I.B.A., of Worthing, it will be seen that the newer conditions are here satisfactorily fulfilled:—

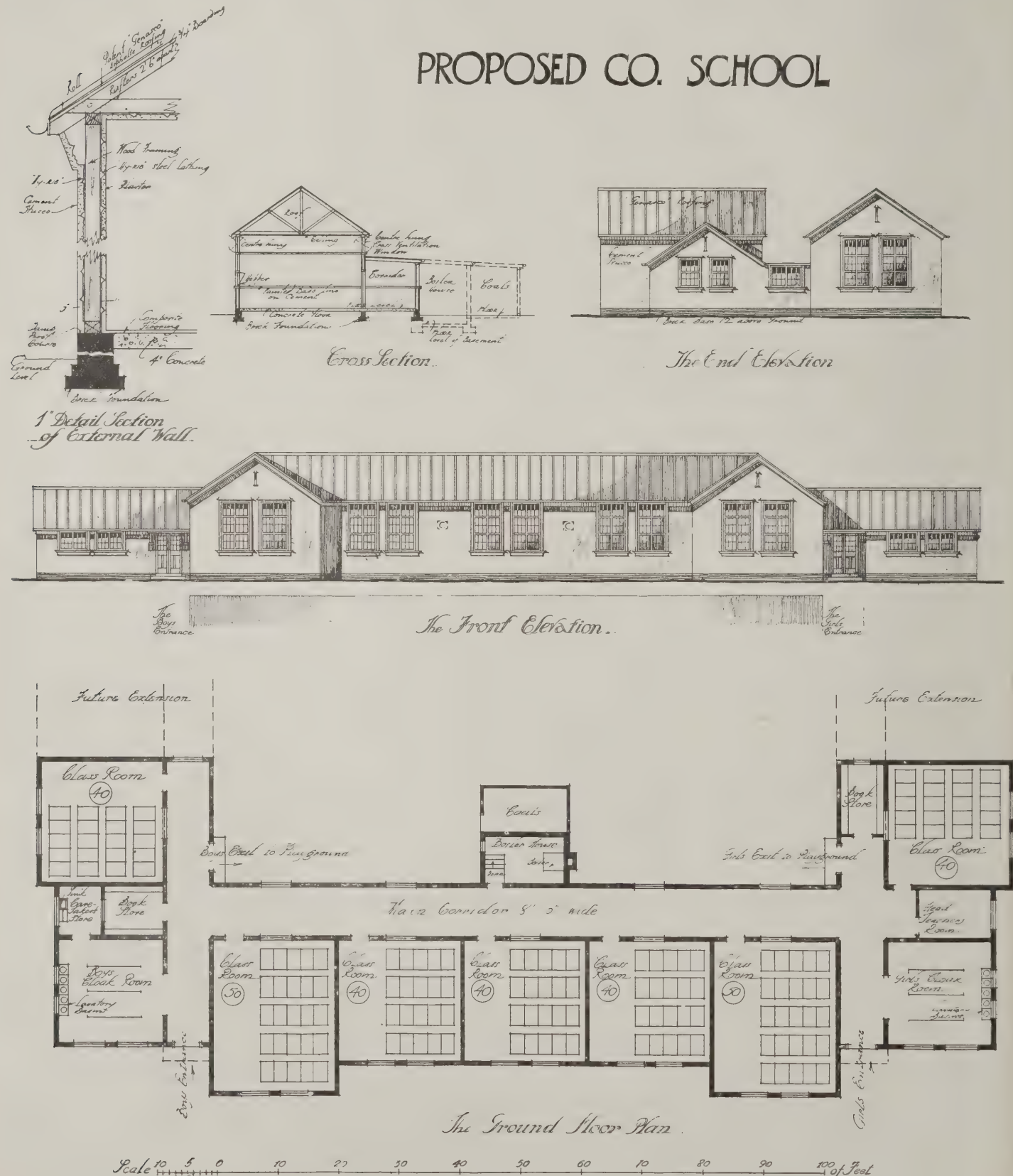
The skeleton of the walls and roofs to be constructed of timber framing, with the studs about 3 ft. apart. The foundations and base to be of brickwork up to a foot above ground-line, and the timbering securely fixed by means of holding-down bolts. To both sides of the framing to fix Hy-rib steel lathing, cemented to form a white stucco exterior with plastering on

the inside, with a cement dado 3 ft. 6 in. high. The walls would thus be hollow and damp-proof. The framing to be ventilated by leaving air-spaces about 9 in. by 3 in. in the stucco, and leaving the steel lathing itself to form an open grating.

A bituminous damp-proof course to be laid directly on top of the brick base. The external brick skirting is to prevent the kicking away of the stucco, which would occur if the stucco were taken down to the ground.

The floors to be 4 in. concrete, covered with red wood composite jointless flooring.

## PROPOSED CO. SCHOOL





The heating chamber and offices to be built of brickwork in the usual manner.

The building to be warmed by a low pressure hot-water apparatus. A liberal allowance of heating surface to be allowed for, on account of the thinness of the walls. A ventilating window to be placed to each class room, opposite the main lighting wall and over the corridor.

The roof to be covered with asphalt roofing in vertical lines. The rafters to be spaced 3 ft. apart, and the roof boarded with  $\frac{3}{4}$  in. rough boarding to receive the roof-covering.

The architect has experimented with the materials mentioned, and has found them quite satisfactory.

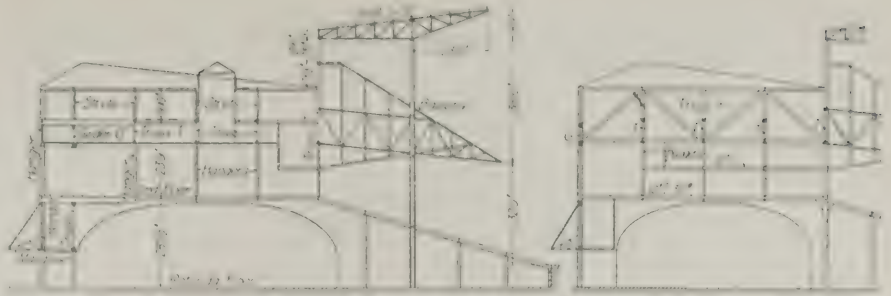
The building, when erected, would have the appearance both inside and outside of a permanent building. It could be erected very quickly, and, omitting offices, playgrounds, and boundaries, would cost about £5 10s. per head.

This type of construction would be specially suitable for a country school of one storey, in districts where the ultimate requirements of a neighbourhood could not be accurately estimated.

The woodwork to the walls being amply protected by the steel lathing and cement, would last as long as the woodwork in a roof of a building erected on more conventional lines.

Great difficulty is often met with in the case of schools of old type and insufficient as regards accommodation, and to enlarge and alter them in order to bring them up to a reasonable standard of efficiency is often an expensive matter. A building on the novel lines suggested would make a cheaper, more sanitary, brighter, and more efficient school than by tinkering with old premises.

Another point in its favour is that it could be erected entirely by local builders, and it would not be necessary to employ specialists in any way.



BROOKLYN GRAND STAND: SECTIONS.

The plan illustrated is the architect's design for a new school proposed to be built in the South of England, and the drawings afford a good idea of how it would appear when finished.

### A STEEL AND CONCRETE GRAND STAND.

The accompanying illustrations show an interesting steel and concrete grand stand which has been built for the Baseball Club at Brooklyn, U.S.A.. The structure is V-shaped on plan, and, with the adjacent uncovered field stand, accommodates 25,000 persons.

The two branches of the V and the short connecting section at their vertex have a combined length of 830 ft. facing the ball field. There is throughout an inclined lower deck about 73 ft. wide sloping up from the level of the ground to a height of about 22 ft. in the rear; it is obstructed only by a single row of columns 46 ft. apart and about 43½ ft. from the front side of the deck.

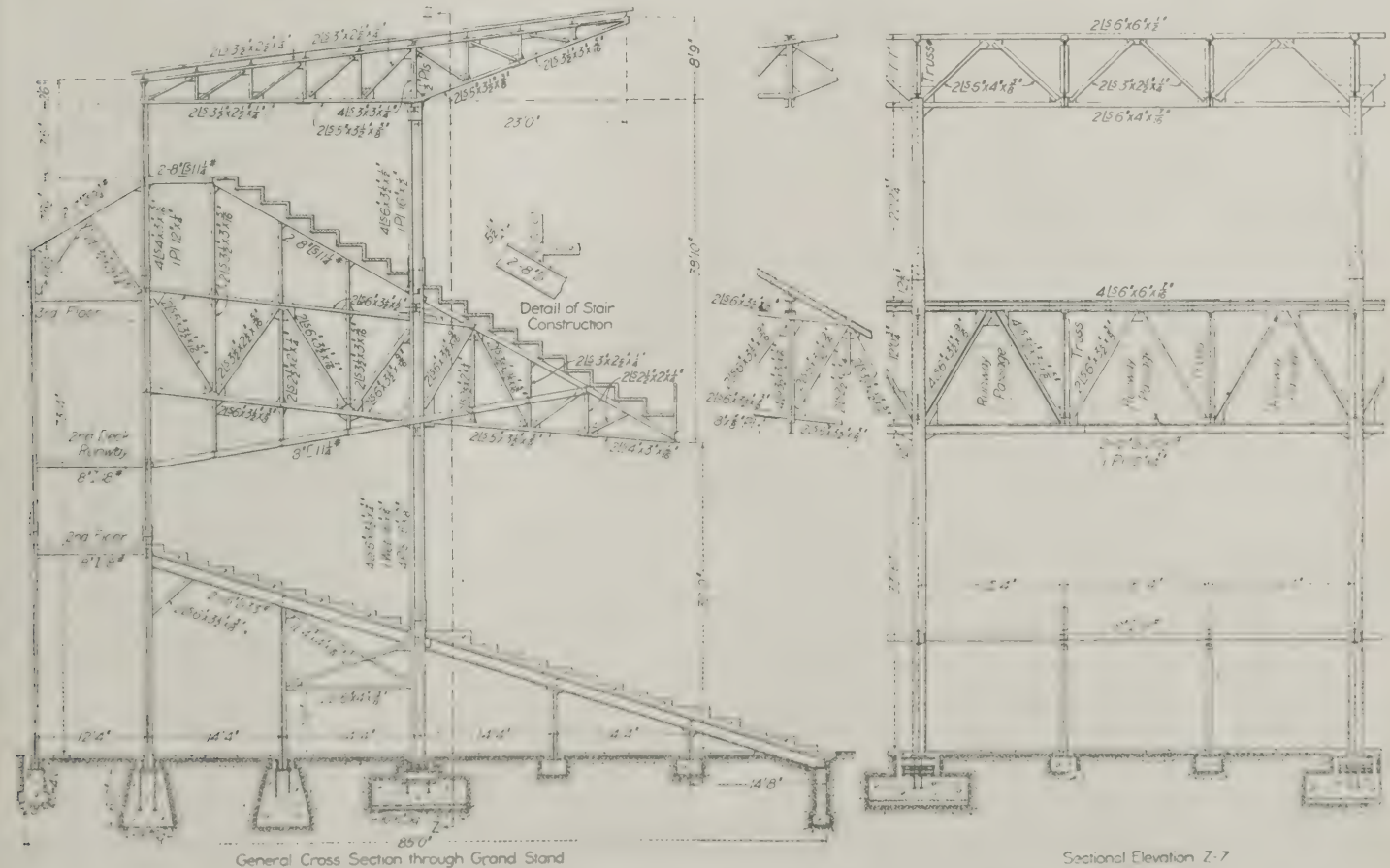
There is an upper platform or balcony 56 ft. wide, which extends the full length of the structure, with a clear height of

nearly 35 ft. above the lower deck in front, sloping upward to a height of 63½ ft. above the ground at the rear. The balcony is unobstructed except by a single row of columns which carry the roof, sloping upward so as to provide an unimpeded view of the grounds. Both the balcony and lower deck have full-length longitudinal passages front and rear, and are accessible by numerous transverse ramps adjacent to corresponding aisles 3½ ft. wide and about 31 ft. apart.

The rear rows of columns in the grand stand pavilions are on the street lines, except within a few feet of the intersection of the latter, where they are set on a curve of 51-ft. radius tangent to the street lines and providing a corner entrance to the ball field.

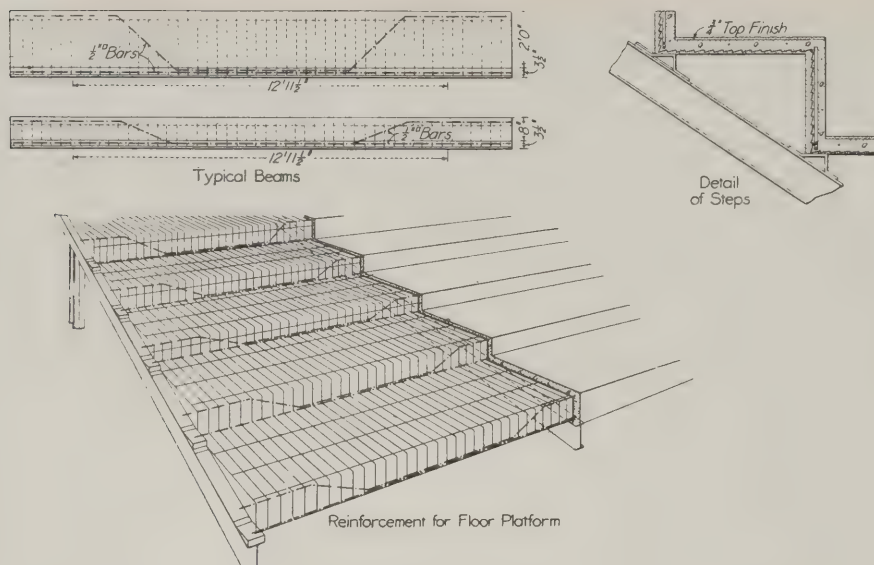
The lower tier of seats is carried directly on inclined transverse I-beam girders, 15 ft. 4 in. apart, which are connected by hitch angles to the main columns and are supported intermediately, with their bottom flanges resting on the inclined tops of one-storey columns, about 14½ ft. apart.

The inclined transverse balcony girders, 56 ft. long over all, are spaced 15 ft. 4 in. apart and support the concrete floor



STEEL AND CONCRETE GRAND STAND, BROOKLYN, NEW YORK.





STEEL AND CONCRETE GRAND STAND, BROOKLYN, NEW YORK.

directly on the inclined top flanges of the cantilever arms and on inclined beams made of pairs of channels back to back riveted to vertical struts supported on the anchor arms of the trusses.

In each regular 46-ft. panel the two intermediate trusses are fulcrumed on a horizontal lattice girder connected to the front column. The depths of the trusses are slightly less than those of the lattice girders, and they pass through the latter, with the top and bottom flanges just clearing those of the girders. At the main panel points, 46 ft. apart, the cantilever trusses are made in two parts, an anchor arm and a cantilever arm, or bracket, both of them field-riveted to gusset plates formed by special sections of web plates, shop-riveted to the columns and projecting beyond both flanges of the latter. All of the transverse girders are field-riveted at the rear end to columns, which serve both as supports and anchorages.

Both first and second rows of columns project above the cantilever girders to support the cantilever roof trusses, the horizontal bottom chords of which are seated on the columns and have connection plates riveted between the column flange angles, thus making a solid connection with both members. Light longitudinal lattice girders connect the tops of the columns in the first row and provide fulcrums for the intermediate roof trusses, which, like the balcony trusses, are all anchored at their rear ends to the second row of columns. A third row of columns in the rear of the second row carries the corridor-floor beams and the roof over the corridor.

The main columns are seated on concrete piers carried several feet below the surface of the ground. The fulcrum girder columns in the front row have maximum loads of about 400 tons and are seated on grillages formed of double tiers of I-beams, through which heavy anchor bolts extend to reaction plates embedded in the concrete. The anchor columns in the second main row are also provided with long, heavy anchor bolts engaging reaction plates in the piers.

The floor platforms consist of continuous reinforced concrete slabs forming monolithic sections of wide shallow steps with horizontal treads and vertical risers, supported directly on the top flanges of the cantilever trusses and of the intermediate I-beams, 5 ft. 4 in. apart. Each riser slab is reinforced by bent longitudinal rods to

act as a beam, and the treads are reinforced by transverse horizontal rods bent at right angles to each end to continue through the risers, thus forming double reinforcement and strengthening the horizontal slabs as beams between the longitudinal girders. As the slopes are uniform and the treads are of different widths, the risers have correspondingly varying heights, divided into about half a dozen beams with different dimensions and reinforcement, all of them corresponding to those shown in detail.

The widths of the treads vary from 21 in. to 63 in., most of them being about 30 in. The thickness of the concrete slabs varies from 4 to 9 in. In the aisles the steps have rounded corners reinforced and protected by steel nosing bars.

Mr. Clarence R. Van Buskirk was the architect and Messrs. Post and McCord were the designers and contractors for the 1,700 tons of steelwork embodied in the structure.

#### A MANUAL OF REINFORCED CONCRETE.

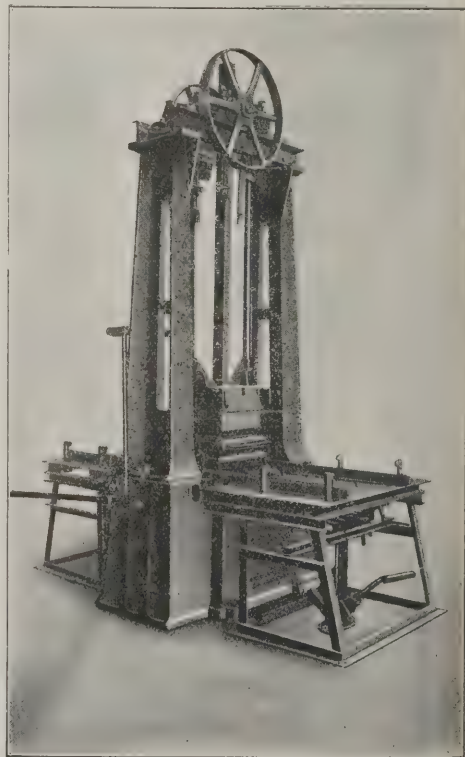
In Mr. M. T. Cantell's "Reinforced Concrete Construction, Advanced Course," a knowledge of principles, and of the use of the formulæ contained in an elementary work by the same author is assumed. The book therefore aims at direct practicality, and the worked examples, of which thirty-one are given, are such as not only the student but the expert may justly regard as so many profitable exercises. The 243 illustrations, consisting largely of photographic views of work in various stages of progress, will be valued for their actuality, as they afford, in many instances, an excellent means of comparing various methods of designing, more particularly since the subjects chosen are representative, taken altogether, of nearly every ordinary class of work. Typical instances of design and calculation are the staple of the book, although there is sufficient theoretical and expository matter to redeem it from anything like superficiality.

"Reinforced Concrete Construction." Advanced Course, with numerous fully worked examples. By M. T. Cantell, Licentiate R.I.B.A. 243 illustrations, including plates. London: E. & F. N. Spon, Ltd., 57, Haymarket. Pages xviii. + 240, 10 1/4 ins. by 7 ins., 12s. 6d. net.

#### TAMPING MACHINE FOR MAKING PAVING BLOCKS.

Artificial paving blocks present many advantages over natural stone, their superior uniformity of size and homogeneity of composition being specially noteworthy; the former quality rendering more easy to lay, with more pleasing appearance when laid, and the latter ensuring more evenness of wearing surface; the artificial stone being, of course, free from liability to flaking or other forms of disintegration due to the peculiarities of natural or geological formation.

For some time past, tamping machines have been used successfully in the manufacture of large paving blocks, and, profiting by the practical experience thus gained, Messrs. Dr. Gaspary and Co., of Markranstädt, near Leipzig, have produced a friction plate tamping machine of improved type, as shown in the accompanying illustration. It will be seen that on both of the open sides of the machine a table is fitted, giving accommodation for four operators to work together. The weight of the falling ram ranges, in accordance with the size of the blocks to be made, from 130 to 500 kilograms, and in order that the foundations may not suffer from the impact, the blows are borne off by an anvil, which also carries the driving gear and the guides for the ram. In steering and controlling the ram by means of a lever, the operator is protected from shocks by the provision of a series of percussion strings. The blows can be adapted to the nature of the material from which the blocks are to be made. The mould-box is provided with small wheels running on adjustable rails. The power required for driving a ram of normal weight is about three-horse-power; and



the machine can be adapted for the production of smaller blocks. It is mentioned that, in order to secure the best quality of granitoid or similar paving blocks, the material should be neither very moist nor very dry, but of the consistency of ordinary soil.



## TEST DEFLECTIONS IN REINFORCED CONCRETE.\*

BY PERCY J. WALDRAM, F.S.I., M.C.I.

THE stiffness of a beam is no criterion of its strength, unless due regard be paid to the factors of depth and fibre stiffness; but it is not too easy always to appreciate that the fibres of a short deep girder, deflecting under load to, say, half an inch, are possibly being punished much more severely than those of a long, shallow girder deflecting, say, three inches. Still more difficult is it to avoid the drawing of incorrect assumptions from the very minute deflections of reinforced-concrete beams, because in their case not only are the formulæ for strength very tedious, but the writers of text books have failed to establish any connection between them and deflection, and seldom even to show how deflection can be calculated at all.

*Small Deflections in Reinforced Concrete Not a Proof of Strength.*

When beams of reinforced concrete are tested to, say,  $1\frac{1}{2}$  times their working load, extremely small deflections are recorded, which are triumphantly quoted as evidence of the enormous strength of the new material, because a steel beam of the same proportions would have deflected very much more under its ordinary working load.

A point which is seldom mentioned, however, is that the deflections are small because the greatest working loads and stresses which we dare to place on reinforced concrete are so very much less than those which we habitually work to in wood or steel.

*Reinforced Concrete Weaker than Steel or Fir.*

A deflection of, say,  $\frac{1}{2}$  in. in an ordinary wood or steel floor beam under a test load might indicate quite a satisfactory factor of safety. The same deflection in a reinforced concrete beam of the same proportions would mean that the structure was on the verge of total collapse.

Reinforced concrete has so many advantages over wood and steel in its great durability, its adaptability, and its simple and monolithic character, that there should be no need for its exponents to claim for it the strength of steel or even that of ordinary fir. It is a much weaker material than either, and to pretend or believe otherwise is to court disaster. The safe load on a fir beam can always be trusted to destroy a reinforced concrete beam of the same size unless the latter is heavily reinforced in compression.

It does not require much detailed investigation to appreciate that the fibre stress of 600 lb. per square inch, which is the limit of good concrete in compression in beams, obviously cannot produce deformations comparable with those which result from 11 or 12 cwt. per square inch on timber (quite a light loading) or  $7\frac{1}{2}$  tons per square inch on steel.

Of course, concrete beams can be reinforced in compression, but the strength of the concrete surrounding the compressive reinforcement is still the governing factor, and double reinforcement is very uneconomical.

Reinforced concrete has the advantage of being easily formed with fixed ends, encasté edges, and into ribbed floors in which the transverse slabs assist the main beams, and the strength of each part con-

tributes to that of one strong monolithic whole; but even with those advantages the proportions of the parts have to be more generous than would be necessary with wood or steel, and the deflections under test loadings are necessarily far less than we have been accustomed to in those materials.

*Deflections of Beams under a Given Stress.*

It should be carefully remembered that we can obtain the deflection of a beam of a given depth, span, and material under a given system of loading without troubling about its moment of inertia or its section modulus, or even the amount of the load, provided that we know that the loading is stressing the fibres to a given amount.

The formula expressing this is:

$$\text{Deflection} = \Delta = \frac{p l^2}{E d}; \quad p$$

being a constant varying with the type of beam and the method of loading. For girders of uniform section under distributed load  $p$  is  $\frac{w}{4}$ . The term  $d$  is either the depth (in symmetrical sections) or (in unsymmetrical sections) twice the distance between the neutral axis and the layer of fibres stressed to the amount  $f$ .  $E$  is the elastic modulus of the material.

Conversely, in all beams having the same proportion of depth to span, any given proportion of deflection to span under the same system of loading must indicate the same fibre stress in material of the same stiffness, whatever may be the size of the beam, the span or the load.

Reinforced concrete therefore must always be expected to show deflections far less than those to which we are accustomed. Long before it deflects to anything like the extent that wood or steel does it would be time for those conducting the test to look to their own safety.

*The L.C.C. Draft Regulations.*

The draft regulations of the London County Council specify certain degrees of deflection which would appear to need careful consideration, and it is hoped that the discussion this evening may elicit opinions as to whether they should be altered; and if so to what extent and upon what lines. It is necessary not to lose sight of the fact that these regulations require the approval of the Local Government Board before they can come into force; and that until they are so approved it is the obvious duty of professional men to endeavour by all available means to bring them to a high state of efficiency. Their scope may be nominally limited to special buildings in London alone, but when once adopted they will most certainly be regarded as a standard, and their conditions will be specified in cases where they have no legal status whatever.

The Act of 1909 which authorises their compilation requires the Council, before applying for their approval by the Local Government Board, to give notice to the Surveyors' Institution, the Institution of Civil Engineers, the Royal Institute of British Architects, and the Concrete Institute. Every member of any of these Institutes can therefore approach his Council or the Local Government Board direct, if it should appear to him to be desirable that any of the 160 clauses should be altered.

The regulations in their present form appear to have been carefully compiled from codes already in existence in Europe and America, where reinforced concrete is far more extensively used than in England. At least one of these codes—that of the French Government—was based upon several years of valuable and exhaustive experimental research. It would therefore scarcely be expected that any serious errors of principle would have been generally adopted, and clauses upon which the foreign codes are unanimous, or are in general agreement, ought apparently to be good enough to adopt.

But precisely the same considerations obtained when other codes were drawn up. The natural desire of the codifying authority to be able to show precedents for its regulations is only too favourable to the perpetuation of errors, which acquire fresh status every time they appear. It would therefore certainly seem to be desirable that the Institutions should do all they can to awaken interest in these regulations and secure the greatest possible volume of criticism from their members; so that even if errors of principle may have crept into other codes, they shall not be repeated in the first British Code.

Early in the present year the author was consulted with reference to a case where the parties had agreed that the regulations as printed in the Council's minutes should be worked to. This opportunity of applying them to the problems of a somewhat complicated design necessitated a close examination of their provisions, and the result was, to say the least, disquieting.

For instance, the clauses determining the strength of columns—based like the French Code and the R.I.B.A. Report, on a mistaken application of Euler's formula—were unworkable; whilst those relating to deflection would appear to be positively dangerous.

Clause 23 allowed beams of a lesser depth than  $\frac{1}{24}$  span provided the calculated reflection was less than  $\frac{1}{800}$  span—regardless of the fact that even with absolutely free ends the concrete of a beam  $\frac{1}{24}$  of the span in depth deflecting  $\frac{1}{800}l$  would be stressed to nearly 700 lb. per square inch. Thus:

$$\Delta = \frac{p f l^2}{E d}, \text{ and when } \Delta = \frac{l}{600} \text{ and } d = \frac{l}{24}$$

$$\text{then } f = \frac{24 \times E}{5 \times 600 \times 24} = 666 \text{ lb. per sq. in.}$$

$$(E = 2,000,000 \text{ lb. per sq. in.})$$

whilst in beams with fixed ends it meant anything up to 3,330 lb. per square inch. As the clause did not specify whether test or working load was to be calculated for it might have been merely harmlessly unworkable, especially as there was no method specified for calculating the deflection of T and double reinforced beams.

But clause 143 specified the test by means of which the District Surveyor should determine whether or not suspected work should be condemned as being a deflection of  $\frac{1}{800}$  of the span under the full working load. A short, deep beam with fixed ends or a thick, square slab with four fixed edges was thus to show precisely the same degree of flexibility as a long, shallow beam with absolutely free ends.

Of course, this was no test at all. No beam or floor of ordinary proportions

\* Extracts from a paper read before the Society of Engineers.



could ever show such a degree of deflection; it would simply cease to exist. A beam of only  $\frac{1}{12}$  of its span in depth, even with absolutely free ends, whatever its section, is necessarily being deformed when the deflection reaches  $\frac{1}{800}$  of the span, to an extent which can only be consistent with a stress of 1,066 lb. per square inch on the concrete.

The depth in the foregoing cases should strictly speaking be 2 in., but allowance must be made for the concrete in tension, which, although neglected, lowers the neutral axis, so that 2 in. is generally more than the full depth.

No amount of compressive reinforcement can make any difference, because when that degree of deflection is reached the concrete surrounding the compression rods is receiving a stress under which it is liable to spall off and leave the rods denuded and free to buckle. If the beam were deeper or if the ends were fixed, as they are in the great majority of cases, the specified degree of deflection would be still more impossible.

But no beam, however bad or shaky, could be condemned under the clause so long as it showed under test load any less deflection. This and the following clause, which stipulates a 50 per cent. increase on the superimposed load, not only gave an implied official approval of a test deflection which would be highly dangerous to everybody concerned, but it would have effectually defeated its own object by preventing the condemnation of any beam or floor which could just stand about  $1\frac{1}{4}$  times its calculated load without any factor of safety.

These and other points were submitted to the Council of the Surveyors' Institution, who promptly met and considered them and made representations which at the time of writing are presumably still under consideration.

#### *Suggested Standard of Deflection under Test Load.*

The author's suggestion made with regard to deflection was that the standard should be  $\frac{1}{800} l$  on a beam of  $\frac{1}{12}$  of the span in depth under the calculated load, with free ends and distributed loading; the effect of any conditions other than these being duly allowed for in each case. This would apparently have been equivalent to about 480 lb. per square inch on the concrete, but would only be reached in a bad beam. Of course, any test which increases only the superimposed load, as stipulated in Clause 144 varies in severity, being lenient on heavy beams and severe on light ones; a 25 per cent. increase on the total calculated load may or may not be equivalent to a 50 per cent. increase on the superimposed load, but it is estimated to do so in the average case.

#### *Effect of Ordinary End Fixing Not Yet Fully Determined.*

It would obviously be better to have a standard criterion of deflection applicable direct to the fixed ends customary in reinforced concrete beams. But whereas, as will be seen later, we can predetermine the deflection of reinforced concrete beams with free ends and compare it with actual tests, experimental data are lacking as to the actual effect of the ordinary methods of fixing the ends of such beams; which are, it must be remembered, almost invariably doubly reinforced at the ends to meet the reverse bending moments over the supports, and are therefore of unequal stiffness. The theoretical effect of complete end fixing in a

beam of uniform section is to reduce the deflection to  $\frac{1}{8}$ ; but to stipulate for a deflection of  $\frac{1}{800} l$  with fixed ends might be right or it might be wrong. We do not know.

Experiments to determine the point would not be very expensive or difficult, and there is power under the parent Act for the Council to make them. But until the point is determined, at least approximately, it is obviously impossible to legislate on a basis about which we know practically nothing.

#### *Importance of a Correct Standard.*

If the standard of stiffness be fixed too high good work will be unjustly condemned; if it is too low, bad and dangerous work will receive an undeserved certificate of strength. The minute range of the deflections makes it all the more necessary to fix the standard with the greatest care.

#### *The Calculation of Deflection under Given Loading where the Stress Involved is Unknown.*

The thankless field of active legislation can now be left for the less exciting but far more interesting study of engineering problems.

The fact that reinforced concrete has been smothered with a mass of intricate formulæ scarcely makes it inviting to the general practitioner. If we had to calculate the moment of inertia every time we used a rolled section we should leave mild steel to experts and go on building in masonry, cast-iron, and wood. Because the formulæ for reinforced concrete continually reiterate properties which might just as well be obtained from tables or diagrams, we leave the subject to experts, and stick to mild steel and the Tables of Properties of British Standard sections. The British engineer requires to be personally assured of the accuracy of his calculations—and when the R.I.B.A. report tells him that the moment of resistance of a T beam is:

$$c b d d s \cdot \frac{S_1^3 4 + m r s_1^2 - 12 m r s_1 + 12 m r}{6 (S_1^2 + 2 m r)}$$

he prefers to use a rolled joist.

As a matter of fact about half the terms in that formula are unnecessary and the other half can be tabulated and plotted on diagrams; so that the designer picks out a T section from his diagrams just as easily as he can pick out a rolled joist. The formulæ used herein are necessarily set out in full, but for use in the office their values are obtained from plotted diagrams.

Only when the subject of reinforced concrete is thus dug out of the overlying strata of mathematical symbols is it possible for the average engineer with limited time and less leisure to investigate its principles. Let us endeavour to excavate the subject of deflection.

The actual and exact measurement of the strains produced by carefully measured stresses is in operation full of interest and instruction to the engineer, and when the theoretical and actual deflections are plotted side by side their comparison is especially useful.

In beams of wood and steel it is a comparatively simple matter to predetermine and plot the deflection due to any given loading; but in reinforced concrete beams the unnecessary complexity of the standard calculations for strength has apparently scared investigators from attempting to deduce the moment of inertia of a section. As a matter of fact, when calculating the strength, all the necessary calculations to

determine the moment of inertia are made, and when this is obtained the ordinary formula

$$\Delta = \frac{x W l^3}{EI}$$

can be applied with the same facility with which it is used to ascertain the deflections of wood and steel beams.

In this standard formula,  $x$  is a constant varying with the type of beam and the method of loading,  $W$  is the total load in lb.,  $l$  is the span in inches,  $E$  is the modulus of elasticity of the material in lb. per square inch, and  $I$  is the moment of inertia of the section in inch units.

#### *Deduction of Moment of Inertia from Moment of Resistance.*

The difficulty of applying this standard formula to reinforced concrete beams has been that the formulæ for moment of resistance do not use the moment of inertia. But the moment of inertia is simply the section modulus multiplied by the distance  $y$  of the neutral axis from the layer of fibres with regard to which the section modulus has been calculated.

$$\text{or } S_m = \frac{I}{y}, I = S_m y$$

The section modulus for the outside skin of concrete is expressed by the formula which determines the moment of resistance of the section with regard to the concrete, with the term  $c$  denoting the stress on the concrete omitted. Similarly the section modulus for the tensile reinforcement is merely the formula which determines the moment of resistance of the section with regard to the steel, with the term  $t$  denoting the tensile stress omitted.

We can therefore obtain the moment of inertia either from the  $R c$  or the  $R t$  formula by omitting  $c$  or  $t$  and multiplying by the distance of the neutral axis from the fibres under consideration. This will be the well-known dimension  $n$  in the one case and  $d-n$  in the other.

The paper concluded with some examples of the application of the author's methods to the results of the well-known tests by Professor Talbot and others.

## REINFORCED CONCRETE AND ELECTROLYSIS.

With reference to many observations on this subject which have appeared from time to time in the JOURNAL, Mr. J. H. Kerner-Greenwood, of King's Lynn, forwards the following communication:

"Many engineers interested in concrete have told me that the only thing which is feared in concrete work is the action of water on the electric cables and wires. No other method of spoiling concrete or disintegrating concrete has been noticed except by the action of dampness coming into contact with the electrical currents; but when this occurs crumbling is invariably noticed. The cohesion of the cement is destroyed, forming a paste which, when dry, can be pulverised with the fingers. One authority states that alternative wetness and dryness is more conducive to the breaking up of the concrete than continued damp. We are doing our best to prove to engineers and architects that the powder "Pudlo" keeps concrete bone-dry, and not only prevents trouble through water coming into contact with electrical wires, but also makes the structure itself absolutely damp-proof."



## NEWS ITEMS.

*An Historic House for Sale.*

Quebec House, Westerham, the fine old Tudor home of the Wolfe family, is for sale.

*Winter Garden for Edinburgh.*

It is proposed to erect in Edinburgh a winter garden with accommodation for at least 1,000 people. The site mentioned is at the west end of Princes Street Gardens.

*The Largest Building Society.*

Halifax Permanent Benefit Building Society, which is this year celebrating its diamond jubilee, is said to be the largest in the world, its assets amounting to £3,233,710.

*Alterations to Salford Town Hall.*

Mr. W. H. Collin, an inspector of the Local Government Board, has held an inquiry into the application by Salford Corporation for leave to borrow £15,614, to be expended on alterations and improvements to the Salford Town Hall.

*Enlargement of Longfleet Church.*

Mr. Herbert Kendall, M.S.A., is preparing plans for the enlargement of Longfleet Church. The nave is to be reconstructed, the gallery is to be abolished, and the north and south transepts are to be added. The cost is estimated at £4,500.

*Conisbro' Isolation Hospital Extension.*

The Local Government Board will shortly hold an inquiry into a scheme of additions and extensions in connection with the Conisbro' Isolation Hospital, which provides for accommodation for 28 additional beds at a total cost of £5,626.

*New Mill, Castletown.*

A large new mill, electrically driven, is to be built on a site between the Arrow and Ensor mills, Castletown, in connection with a well-known rubber tyre company, for the manufacture of motor tyre cloth. The mill will find employment for about 600 work-people.

*A Kursaal for Brighton.*

It is understood that Mr. A. D. Rosenthal, chairman of the Brighton Palace Pier Directorate, is negotiating for a site in Brighton on which to erect a large Kursaal and Opera House. The seating accommodation would be for not less than 3,000 people, and the building would have a sliding roof and roof garden.

*Workmen's Dwellings, Penzance.*

Penzance Town Council have passed a scheme for the erection of thirty-three houses at an estimated cost of £6,895, this sum including road and sewer making, cost of land, and legal expenses, the actual cost of building being estimated at £5,335. The type of planning favoured provides on the ground floor a kitchen and scullery, but no parlour.

*Repertory Theatre for Bushey.*

It is proposed to establish a repertory theatre at Bushey, and with that object an influential committee has been formed. Mr. F. Whelen, founder of the Stage Society, in commending the scheme at a meeting at which the committee was appointed, expressed his confidence that the new movement now gaining force would result in many repertory theatres being built in various parts of the country.

*New Library Building for Harvard University.*

Mr. Harry Elkins Widener, who, with his father, was among those who went down on the "Titanic" in April last year, was an eminent book-collector, his library including some 3,000 very rare volumes—a first edition of "Paradise Lost," and the Countess of Pembroke's own copy of Sidney's "Arcadia," being among them. In his will the library was bequeathed to his *alma mater*, Harvard University; and his widowed mother has offered to defray the cost of a fine building in which the collection shall be worthily housed. Mr. Horace Trumbauer has designed a handsome building in the Corinthian order. It is to cover a site 275 ft. long and 206 ft. wide, with a capacity for 2,500,000 volumes, and estimated to cost £250,000.

## CONCRETE-MIXING AND PILE-DRIVING MACHINERY.

As soon as it was recognised that concrete-mixing by machinery was not only incomparably more rapid than hand-mixing, but much more thorough, mixing machines were speedily brought to a high pitch of perfection. The Ransome concrete mixer has been from time to time improved in various details, but is nevertheless so simple in construction as to offer no difficulty in the working, while extreme durability and the minimum maintenance cost are ensured by the fundamental soundness of the principles upon which it is devised, as well as by the thoroughness of the workmanship, upon both of which points the manufacturers particularly insist. The Ransome-verMehr Machinery Co., Ltd., have just issued a catalogue (No. 126) in which are described and illustrated their patented concrete mixers, steel sheet piling, pile extractor, aggregate conveyors, stone driers, and tar macadam mixers. Various types of mixers are shown—belt-driven, direct-coupled with engine and boiler, with electric motor, or with petrol engine, and with direct-coupled hoist. The mixers can also be built to meet special conditions, and special plants supplied for the British Admiralty Harbour Works at Dover, to the

India Office for the Sara Bridge and the Lower Ganges Bridge, are shown in an interesting series of illustrations. The mixers are also adapted for special services, such as street work, and the mixing of materials other than concrete, such as chemicals. Among auxiliary appliances are the Ransome bucket hoist, hoppers or bin gates of different types, storage hoppers, etc. A hand-mixer for concrete or tar-macadam is also shown, and there is a reference to the firm's tar-macadam mixers.

Ransome steel piling is also illustrated. In this system, the pile unit is of trough or corrugated form, ensuring lightness as well as strength, and it is noted in particular that these piles bundle together extremely well for convenient transit. They are supplied in single lengths up to 60 ft. Among the illustrations of their actual employment is one of a weir at the Rosyth Naval Base, where they form a dam withstanding 25 ft. head of water. We are informed that at the Rosyth Naval Base Messrs. Easton Gibb and Son, Ltd., have used more than 500 tons of these piles, and the contractors for the Port of London Authority extensions have used more than 700 tons.

Of very special interest is a newly invented and patented pile extractor, which works by steam power on the lines of a steam hammer, but delivers an upward blow which is transmitted through side links to the pile itself. It is recorded that the extractor has in two minutes pulled whole timber piles which penetrated 40 ft. in ground, with only four tons pull on the crane rope. Nine of these machines are being operated at Rosyth, and orders have been received from the India Office and from Messrs. Holloway Brothers (London), Ltd. Combined machines are capable of driving or extracting as required.

This catalogue is of unusual value and interest, as it not only affords a clear idea of all the appliances listed, but contains also much useful tabular matter dealing mainly with dimensions and weights. A select list of the firm's clients comprises all the operative Government Departments, Colonial Government authorities, and the chief great engineering and building contractors.



RIVER TRENCH ACROSS THE OUSE, NEAR BEDFORD, CARRIED OUT IN RANSOME PILING.



# COMPLETE LIST OF CONTRACTS OPEN.

Unless expressly stated to the contrary, all deposits required for bills of quantities, etc., are returned on receipt of *bona-fide* tenders. The words "Fair Wages Clause" inserted in certain paragraphs signify that persons tendering must conform to a fair wages clause in the Contract, which requires them to pay the rates of wages current in the district.

## BUILDING.

March 27.—**ALTERATIONS, ETC. Brynkir.**—Alterations and improvements to "Soar" (C.M.) chapel, Brynkir. Plans and specifications can be seen at Chapel House, Brynkir. Tenders to A. Ivor Jones, stationmaster, Brynkir, Garn, S.O. O. Morris Roberts and Son, M.S.A., Architects and Surveyors, Portmadoc.

March 27.—**SCHOOL ALTERATIONS. Halifax.**—Alterations and additions to Heath Grammar School, Halifax. Plans may be seen and quantities obtained at the offices of Richard Horsfall and Son, Architects and Surveyors, District Bank Chambers, Commercial Street, Halifax.

March 27.—**HOUSES. Foleshill (near Coventry).**—Erection and completion of eleven houses, Alderman's Green, Foleshill, near Coventry, for the Coventry Perseverance Co-operative Society, Limited. Plans and specifications can be seen and forms of tender obtained at the offices of Walter H. Hattrell, Architect, 23, Hertford-street, Coventry. Tenders to the Co-operative Society at their Registered Offices, West Orchard, Coventry.

March 27.—**EXTENSION. Milnsbridge.**—Extension of mill premises at Milnesbridge. Names to J. B. Abbey and Son, Architects, etc., 34a, New Street, Huddersfield.

March 28.—**RESIDENCE. Almondbury.**—Erection of a residence at Almondbury. Drawings may be seen and bills of quantities obtained at the offices of J. B. Abbey and Son, 34a, New Street, Huddersfield.

March 28.—**ALTERATIONS, ETC. Carlisle.**—Alterations and additions proposed to be made at St. Joseph's Home, Botcherby, Carlisle. Plans and specifications can be seen at the offices of H. Foxall, Licentiate R.I.B.A., Architect, 54, Lowther Street, Carlisle. Quantities will be supplied on deposit of £1 1s. Tenders to the Architect.

March 28.—**SCHOOL ALTERATIONS. Golcar Wellhouse (Yorks).**—Execution of the following works for the West Riding Education Committee. Golcar Wellhouse Council School, alterations (carpenter and joiner). Plans may be seen and specifications with quantities obtained on application to the Education Architect, County Hall, Wakefield. A plan may also be seen at the school. Tenders to Francis Alvey Darwin, Clerk of the County Council, County Hall, Wakefield.

March 28.—**SCHOOL ALTERATIONS. Mexborough.**—Alterations at Mexborough Garden Street Senior Mixed Council School, for the West Riding County Council. Specifications may be obtained from W. R. Hudson, Divisional Clerk, Mexborough, to whom tenders are to be sent. Plan of the alterations may be seen at the Divisional Clerk's Office.

March 28.—**SCHOOL. Hemsworth, (Yorks).**—Execution of the following works for the West Riding Education Committee. Hemsworth South Road, new infants' school, (builder, joiner, slater, plumber, plasterer, painter, ironfounder and smith and asphalter). Plans may be seen and specifications with quantities obtained on application to the Education Architect, County Hall, Wakefield. A deposit of £1 in each case must be sent to the West Riding Treasurer, County Hall, Wakefield. Tenders to Francis Alvey Darwin, Clerk of the County Council, County Hall, Wakefield.

March 29-April 16.—**SCHOOL. Ponteland (Northumberland).**—Erecting a new Council school to accommodate 206 scholars at Ponteland, for the Education Committee. Names and addresses together with a deposit of £22s. for specification and bills of quantities to C. Williams, Secretary to the Education Committee, The Moothall, Newcastle-on-Tyne. By March 29, and tenders by April 16. Plans of the work may be inspected at the Office of the Education Committee.

March 29.—**SCHOOL. Penmaenrhos.**—Erection of new council school at Penmaenrhos, near Old Colwyn. Plans, etc., to be seen at the Higher Standard School, Llandudno. Tenders to E. R. Davies, Secretary of Education, Carnarvon. Rowland Lloyd Jones, County Architect, 14, Market Street, Carnarvon.

March 29.—**SCHOOL ALTERATIONS. Ross-on-Wye.**—Alterations and repairs to the Council Elementary Schools, situate at Ross-on-Wye, for the Herefordshire County Council. Plans and particulars may be seen at the Schools, Ross, or the County Surveyor's Offices, Shirehall, Hereford. Tenders to the County Surveyor.

March 29.—**SCHOOL, ETC. Sheffield.**—Execution of works of all trades required to be done in connection with the following, for the Education Committee: (1) New council school, Wharcliffe View, Hillsborough; (2) alteration and extension, Highfield special school. Drawings and conditions of contract may be seen, and bills of quantities and forms of tender obtained, on application to the City Architect, Town Hall, Sheffield, to whom tenders are to be sent. Fair wages clause.

March 29.—**MILL, ETC. Bramley.**—Erection of a spinning mill, with boiler and engine house, offices, etc., at Bramley. Application for bills of quantities to Moore and Crabtree, Architects, York Chambers, Keighley, where plans may be seen.

March 29.—**WARD BLOCK. Stafford.**—Construction of a new ward block at the Isolation Hospital, Coton Field, for the Corporation. Plans may be seen, and specification, bill of quantities, and other particulars obtained on application to W. Plant, A.M.Inst.C.E., Borough Engineer and Surveyor, Borough Hall, Stafford, upon deposit of £2 2s. Tenders to Richd. Battle, Town Clerk, Borough Hall, Stafford. Fair wages clause.

March 29.—**FARM BUILDINGS, ETC. Sleaford.**—One set of farm buildings and two houses in Great Hale Fen, also for one house in the parish of Brant Broughton, for the Kesteven County Council. Plans and specifications can be seen and quantities obtained on application to Jesse Clare, County Architect, Sleaford. Tenders to Thos. H. Holdich, Clerk of the County Council, Sleaford.

March 29.—**DWELLING-HOUSE. St. Austell.**—Erection of a dwelling-house at Higher Boscovallett, near St. Austell. Plans and specifications may be seen and full particulars obtained at the offices of F. C. Jury, Architect, St. Austell. Tenders to Henry J. Bulteel, Land Agent, Charlestown, St. Austell.

March 29.—**ADDITIONS. Eckington.**—Additions and alterations to the School Buildings, for the Trustees of Camm's School, Eckington. Plans may be seen and bills of quantities obtained at the office of the Architects, Currey and Thompson, 3, Market Place, Derby. Tenders to A. E. Hall, Clerk to the Trustees, Eckington, Sheffield.

March 29-31.—**BRIDGE. Broxburn (Linlithgow).**—Taking down the existing bridge over the Union Canal at Broxburn and for supplying and erecting a new bridge, for the Bathgate District Committee. Plans may be seen at the office of the Engineers, Crouch, Hogg, and Easton, C.E., 14, Blythwood Square, Glasgow, from whom specification, schedule of quantities, and form of tender may be obtained on deposit of £1 1s. Tenders to J. G. B. Henderson, District Clerk, Bathgate District Committee, Linlithgow, by March 31. An assistant engineer will attend at Drumshoreland Station on March 20th, on arrival of the train due at 11.21 a.m., to meet contractors.

March 31.—**REFUSE DESTRUCTOR. Farnborough.**—Erection of a refuse destructor with the buildings, chimney stack, and other works in connection therewith, for the U.D.C. Copies of plans, specifications, and particulars may be obtained from J. E. Hargreaves, Surveyor, Town Hall, Farnborough, Hants, on deposit of £3 3s. Any person tendering must do so on the distinct understanding that the works will only be carried out if the Council receive the sanction of the Local Government Board to a loan for defraying the cost on a site at the Sewage Disposal Works. Tenders to Jno. A. Kingdon, Clerk to the Council.

March 31.—**CONVENIENCE. Edmonton.**—Erection of a public sanitary convenience, on the Green at Edmonton, for the U.D.C. Forms of tender, specification and quantities and any further particulars required may be obtained on application to Cuthbert Brown, A.M.I.C.E., the Engineer to the Council, Town Hall, Lower Edmonton. Plans can be inspected at the Engineer's Office, Town Hall, Edmonton. Tenders to Wm. Francis Payne, Clerk of the Council, Town Hall, Edmonton.

March 31.—**BOUNDARY WALL. Consett.**—Erection of a retaining wall at the rear of the Consett Secondary and Technical School, for the County Council of Durham. Plans, specification and general conditions of contract can be seen at the office of the County Education Architect, W. Rushworth, Shire Hall, Durham, and at the Consett Technical School. Tenders to J. A. L. Robson, County Secretary for Higher Education, Shire Hall Durham.

March 31.—**RESIDENCE. Bronnant.**—Erecting a residence at Bronnant, Cardiganshire. Drawings and all particulars can be obtained at the office of T. E. Rees, M.S.A., Architect, Bank Chambers, Merthyr Tydfil. Tenders to the Architect.

March 31.—**TANK. Nunney Catch.**—Construction of an underground brick water-storage tank at Nunney Catch, near Frome, for the Frome R.D.C. Specifications and plans may be seen on application to J. A. Beynon, Surveyor, Nunney Road, Frome, of whom forms of tender may be obtained. Tenders to W. R. Kent, Clerk, Public Offices, Frome.

March 31.—**CAR DEPOT EXTENSIONS. Wolverhampton.**—Extensions to the car depot in Cleveland Road, for the Tramways Committee. Plans and specification can be seen and bill of quantities and form of tender obtained on deposit of £1 1s., with George Green, M.Inst.C.E., Borough Engineer, Town Hall, Wolverhampton. Tenders to Town Clerk's Office. Fair wages clause.

March 31.—**CHURCH HALL. Creigiau.**—Erection of a church hall at Creigiau, in the parish of Penttyrch. Plans, specifications, and bills of quantities may be seen at Fairwood, Creigiau (Rev. D. N. Davies), on depositing £2 2s. Tenders to Henry Williams, Vicar, Penttyrch Vicarage, Cardiff.

March 31.—**DWELLING HOUSES. Mirfield.**—Erection of five dwelling-houses in Coppin Hall Road, Mirfield. Plans may be seen and quantities obtained at the office of Joe Ainley, Architect and Surveyor, Slaithwaite.

March 31.—**SCHOOL. Edinburgh.**—Erection of King's Park School, St. Leonard's Lane, for the School Board. Plans may be seen and schedules of measurements obtained at the office of J. A. Carfrae, Architect, 3, Queen Street. Tenders to John Stewart, S.S.C., Clerk to the Board, School Board Offices, Castle Terrace, Edinburgh.

April 1.—**ALTERATIONS, ETC. Spalding.**—Alterations and additions to manager's house, Spalding Gasworks: Names to the Architect, J. B. Corby, F.S.I., All Saints' Place, Stamford. Plans and specifications can be seen at the offices of the Architect, also at the offices of the Clerk to the Council.

April 1.—**ALTERATIONS, ETC. Burton Fleming and Driffield.**—Execution of the following work for the Education Committee of the East Riding County Council (a) alterations and additions to the Council school at Burton Fleming; (b) erection of a Council school for infants and rooms for domestic instruction at Driffield. Plans and conditions of contract may be inspected, and specifications and forms of tender obtained on application to the Building Surveyor, County Hall, Beverley. Quantities in respect of the Driffield school only can be obtained upon depositing £1 1s. Plans will also be deposited at each of the above-named schools. Tenders to J. Bickersteth, Clerk, County Hall, Beverley.

April 1.—**FOUNDATIONS. Aberdare.**—Construction of brickwork and concrete foundations, flues, and firebrick lining, and other works in connection with the proposed extension of the Council's electric light undertaking, for the Aberdare U.D.C. Full particulars can be obtained from S. Sellon, 36, Victoria Street, Westminster, S.W., the Council's Consulting Engineer. Tenders to D. Ll. Griffiths, Clerk, Town Hall, Aberdare.

(Contracts continued on page xx.)

Telegrams: "DRY WAINSCOT, LONDON."  
Telephone: 1339 London Wall. 3746 Central.

**WM. OLIVER & SONS, LTD.,**

Thoroughly Seasoned Wainscot,

Mahogany, Walnut, Teak, and other  
Hardwoods, in all Thicknesses.

Austrian Wainscot Logs and Planks

Office: 120, BUNHILL ROW, LONDON, E.C.

**SYDNEY PRIDAY,**  
**AUSTRIAN WAINSCOT.**

Office:  
St. George's House, 6/8, EASTCHEAP.  
Telephone: 667 Av.



# THE ARCHITECTS' & BUILDERS' JOURNAL.

Wednesday, April 2, 1913.

Volume XXXVII. No. 951.

No. 27.



(From Piranesi.)



NATIONAL SHAWMUT BANK, BOSTON, U.S.A. WINSLOW AND BIGLOW, ARCHITECTS.

(See page 348.)



# THE ARCHITECTS' & BUILDERS' JOURNAL.

APRIL 2, 1913.

CAXTON HOUSE, WESTMINSTER.

VOLUME 37. No. 951.

## The "Standard" Cottage.

MR. RUNCIMAN'S recent announcement to the effect that his department has been making an effort to present some solution of the rural housing problem by the preparation of standard plans for cottages, including specifications and quantities, which can be forwarded to any local authority, landowner, or other interested person, on the payment of a small fee, and so enable them to "dispense with the services of the local architect," is a striking example of the ordinary politician's absolute inability to grasp anything beyond the mere practical requirements of the moment. Such a scheme depends for its success on its appeal to the crudest form of materialism—in other words, on the elimination of the artist. It is a survival of that peculiarly unintelligent outlook which was so characteristic of the worst periods of the nineteenth century, the fruits of which we see in every town and suburb throughout the country.

We admit the pressing need for cottages for the agricultural labourer, and we admit the necessity for the strictest economy, but we very much doubt whether Mr. Runciman's proposals will make for such economy, and we are certain that they are disastrous to the highest interests of humanity. Cost is the great factor in cottage building, but cost is influenced by materials, in some places it is cheaper to build of stone, in others with a good brick suitable for facings, again in other parts it may be better to build with an inferior brick and to use plaster or cement as a surface covering; and in districts where there is an ample supply of timber and cottages can be put sufficiently far apart, some form of timber-framed building covered with matchboarding may be at once both the most suitable and the least expensive. Another most important consideration is the method of treatment, the steeply pitched tile roofs which come almost down to the ceilings of the ground floor rooms and give ample accommodation for bedrooms, and which are such a feature of the Home Counties, would be quite unsuitable on windy Dartmoor or in the Lake District—there we require the low-pitched slate roof, giving little opposition to wind or rain, the close-cut eave, the low, substantial chimney stack, the sheltering porch, and in fact an entirely different treatment. How are Mr. Runciman's "Standard Plans" to provide for all these contingencies? Is it to be left to the local builder to chop and change the plans, and to adapt and price from quantities prepared for a brick dwelling, in order to estimate for a stone one?

These are a few of the practical suggestions which we should like to recommend to Mr. Runciman's attention before he proceeds any further with his "practical" scheme.

It is perfectly obvious to the most superficial that in order to meet with these different requirements, not one standard plan is required, but a dozen, or even a dozen dozen, and that Mr. Runciman's well-meaning efforts would result in the setting up of an architectural shop in which he would hand over the counter various

examples of the latest official made plan to suit all and sundry, an establishment which, even if it were cheap (which we doubt!) would certainly be nasty. That such a suggestion should come from a member of the present Government, which, whatever its sins of omission or commission (according to the colour of one's politics) has been instrumental in passing the Town Planning Act, is certainly a matter for surprise.

The nineteenth century has taught us, if nothing else, the dangers of an unregulated commercialism. There is scarcely a town or village of any size throughout the country that has escaped its devastating influence.

Dr. Deamer, in a recent article on our ugly towns, lays special emphasis on the necessity of escaping from the nineteenth century. We all know the sordid and depressing effect of our modern suburbs, acres of mean streets, rows of monotonous elevations, to the drab and soul-destroying effect of which the wearisome repetition of the offending unit has in no little measure contributed.

For the first time in the history of man, he has built without joy, and the study of uglification (to parody "Alice in Wonderland") has been raised to the dignity of a science.

We do not mean to say that the architect has been altogether without blame; the doctrine of getting on at all costs was preached too vigorously for that, and "5 per cent. and extras" is scrawled over the façade of more than one building; but his sins were the sins of his age, and we now have a considerable body of conscientious and artistic workers whose services are available. Probably no body of men have made greater efforts to improve themselves and to realise their responsibilities during the last twenty years than have architects generally, and this has involved an enormous amount of hard study and considerable self-sacrifice.

The countryside, the village, and the small town offer us a clean sheet; they have up to the present escaped the fate of our larger towns and suburbs to which we have referred. If the English tradition remains anywhere it is to be found here; and no words are strong enough to voice our indignation at the suggestion that the whole country is to be deluged with the official patterns from Whitehall; for, however good the individual design is, an unlimited multiplication, with little or no concern for local requirements in the question of design and materials, can only be productive of the most deplorable results. Let Mr. Runciman confine his attention to facts and figures, to investigation and comparison; let him compile tables of the cost of building in different localities, and address himself to the question of accommodation, to the merits or defects of the different kinds of fittings, to suggestion as to arrangement, and to the number of cottages which should go to the acre—for these and similar other questions rightly demand the attention of any government department interesting itself in housing reform—but let him beware of attempting to foist his ready-made plans, with specifications and quantities complete, on any local authority or landowner who may wish to build.

S. C. R.



**St. Saviour's, Southwark.**

**H**ARDLY any more striking instance of the average Londoner's apathy towards architecture could be cited than his coldness towards the somewhat languishing scheme for investing St. Saviour's, Southwark, with the dignity of a cathedral. Its size, its position, and its history, if not its architectural interest, should secure for it, at all events, sufficient consideration to place it beyond the reach of penury. Leaving Westminster out of the question, the description of St. Saviour's as "the third church in the metropolis in magnitude and architectural character" still holds good. It is of cruciform plan, and possesses a Lady Chapel, which, for sixty years prior to 1624, had been let out as a bakehouse! In 1689 the tower was repaired, and the pinnacles were rebuilt. The tower, which is to-day so familiar, owes much to George Gwilt's restorations of 1818 (when the pinnacles were again rebuilt), and 1822-4. Gwilt, in fact, gave to the church most of its present exterior character. He declared that he had rigidly adhered to the former work, "not only in the general design, but in the minutest details, wherever prototypes could be found." In 1829-30 the transepts were restored from the designs of R. Wallace. The nave was rebuilt in 1838-9, and during the past quarter of a century there have been extensive restorations, not all quite happy. But its choir and its Lady Chapel are its chief glory. As Mr. W. H. Godfrey has remarked, "the beauty and mystery of the Early English vault can be studied to perfection in the Southwark choir, its aisles, and its Lady Chapel. In the last-named the triumph of the mason's art and the whole genius of Gothic architecture are at once apparent." Gower, Massinger, Fletcher, and Edmond Shakespeare are buried at St. Saviour's, which altogether is a church worthy of the most reverent cherishing. It is very gratifying, therefore, to find that during the past week it has become a topic of interest on the very happy occasion of a donation of £1,000 by the Prince of Wales towards the endowment fund. So illustrious and so generous an example should be followed up with sufficient vigour to enable at least a beginning to be made towards a realisation of the excellent scheme for making Southwark Cathedral the starting-point in the complete reformation of Bankside.

**Unhappy Hampstead.**

**H**AMPSTEAD has two rather pretty quarrels on its hands. It is fighting the London County Council, which is seeking power to use for educational purposes certain land in Parliament Hill Fields; and it is opposing even more vigorously the proposal to run a new line of railway through the Hampstead Garden Suburb Extension. It is urged that in 1886 Hampstead contributed £20,000 towards the purchase of Parliament Hill Fields upon condition that they should be perpetually maintained as an open space, and that certain clauses in the London County Council (General Powers) Bill are inimical to that condition. The House of Commons Court of Referees have decided that the Hampstead Borough Council are entitled to be heard before the Committee on the Bill. While nominally the objection—a perfectly good one—is to the loss of a bit of open space, there lurks beneath it, one cannot help suspecting, an instinctive dislike of the kind of school that the Council is in the habit of building, and of the proclivities of the children who are likely to attend it. With the objection to the Northern Junction Railway proposal, sympathy will be more general. A railway snorting, clanking, and puffing out fire and brimstone along an embankment 35 ft. high does not enhance the amenities of a Garden Suburb. But while we wish Hampstead success in both issues, there is too much reason to fear that inveterate utilitarianism will be too strong for them. Nevertheless, to put up a good fight will be to advance a step or so towards the higher education of the public. It should

not be in the power of unenlightened education authorities and commercially-minded railway promoters to destroy at a blow the fruition of larger interests than they seem capable of conceiving.

**The Super-Cinema.**

**T**HERE is no adequate reason why the cinema theatre should be flauntingly vulgar as to its exterior and bare to beggarliness within. That, however, is commonly the condition, the theory being that while the outside, in order to make a forcible appeal to the childish fancy, must flare like a raree show at a fair, the interior is not meant to be seen, and need not therefore be decorated. Perfectly bare walls, it is true, are infinitely preferable to the sort of decoration one shudders at outside, but these violent extremes are almost physically painful. To say that they are shocking is more than a figure of speech, and it ought to be in the power of some central committee of taste to prohibit them, or, at least, to put some check upon the barbaric brutalities of the façade. There are, it is said, 372 picture palaces in London alone, and one can understand the struggle for existence tending to gaudiness of plumage. It must be acknowledged, however, that some cinemas of quite excellent design have been built by architects of standing; and as last week a cinema in the Haymarket was opened by Princess Alexander of Teck, it may be inferred this building has all the dignity that such an association implies, and is setting an influential example in better taste. It is decorated internally "in cream and gold in the style designated as Neo-Greek." These things are of good augury, for if gaudy plumage marks one stage of evolution, protective mimicry represents another. And if the aristocrat and the artist set a good example it will be generally imitated, and even the suburban cinema will cease to howl at you as you hurry past.

**Railways and the General Line of Building.**

**W**HETHER and to what extent a railway company is superior to the ordinary restrictions with regard to a general building line has been the subject of a good deal of litigation. The law on the point was very clearly stated by Mr. Justice Channell in the course of his judgment in the recent case of the Metropolitan Railway Company v. the London County Council, which case was an appeal from a decision by a metropolitan magistrate. Briefly, the railway company had built upon some forecourts in the Euston Road, and had been thereupon sued for erecting a structure beyond the general building line. The structure was an accumulator shed, 20 ft. long and 8 ft. wide, consisting of a 9-in. brick wall to a height of 4 ft., supporting a wooden structure, with a roof of galvanised iron, the total height to the ridge being 11 ft. 4 in. Mr. Justice Channell thought that the railway company had power to contravene the building line by putting up structures upon what he called the "debatable margin of their land," provided that the structures were used for railway purposes. They could not, he thought, build for any extraneous service—they could not, for instance, put up shops; but the Act empowered them to exceed the general building line by erecting on their own land any structure which they could show to be necessary for railway purposes. In the present instance the company were protected by Section 31 of the London Building Act, 1894, which states that nothing in Part III. of the Act shall affect the exercise of any powers conferred upon any railway company by any special Act of Parliament for railway purposes. The company's appeal against the metropolitan magistrate's decision was therefore upheld, Mr. Justice Bray and Mr. Justice Coleridge agreeing with Mr. Justice Channell. The case affords further proof that, to a certain extent, railway companies are a law unto themselves.



## SMITH SQUARE, WESTMINSTER.

TO the average Briton there is something sacrosanct about the word "square." His great military hero "stood foursquare to all the winds that blew." He cherishes a tradition that a square of British infantry could never be broken. He squares up to his enemies, squares his accounts, thinks that the American expressions a square deal and a square meal enrich our language with the apt formulation of two noble ideals, and, in admitting that he is a Freemason, will as likely as not put it that he is on the square. Also he talks, with as much of gusto as of inaccuracy, of a man being square-toed, or square-shouldered, and of putting in, or taking out, a square of glass.

Imported from France in the fourteenth century, the word had become a prime favourite in several peculiarly English applications when, during the eighteenth century, the fashion set in of building what are known as "the London squares." Any respectable map shows that, in fact, most of them are not squares except in the secondary or derivative sense, and it was upon this consideration, probably, that, at the outset, certain Italianate persons sought to have them called *piazze*. Naturally, this attempt failed signally; and

hardly more fortunate were the pedants who wanted to speak of "quadrates," although their effort seems to be reflected in some of our "quadrants," as Regent Street and Highbury. If, however there is in our rough island story one moral that stands out more clearly than another, it is that we do not care a rap for precision of any kind—as witness our implicit scorn of axiality—and, in particular, we have an utter contempt for mere correctness in language. In words, as in architecture and in all the arts and crafts, Goodenough is the idol to which we make many alarming sacrifices.

Our squares, then, are of many shapes: some of them are not even rectangular, and hardly any of them answer even roughly to the geometer's definition. But, anyhow, square is a more comfortable and convenient, if a less comprehensive word than *piazza*, and nobody cares a jot about its strict meaning. More potent are its associations. The great squares—that is, the "residential" squares, as distinguished from places like Trafalgar Square, which is more of the nature of a *piazza*—stood for wealth and serenity, with a touch of sedate grandeur, and gave an address of opulent suggestion. Consequently there soon sprang up in the



Photo: Architects' and Builders' Journal.

VIEW LOOKING ACROSS SMITH SQUARE, WESTMINSTER.

suburbs many cheap imitations which stood rather for smug respectability. Not that the suburban square of modern date is to be sneered at. Its dimensions are not always mean, and where the builder gave up a goodly slice of land in the midst, fenced it about, and planted behind the fence a hedge of sufficient density to shield from the gaze of the profane vulgar the players at croquet, bowls, or, later in history, lawn-tennis, he almost necessarily put up houses of a size and a character for which the comparatively well-to-do tenant would be willing to pay a remunerative rental, the style being usually reminiscent (with or without derision) of the heavy classicality of some of the more aristocratic squares, or feebly caricaturing the originals of Adam or Chambers, or Dance or Cockerell, or Barry or Hardwick.

Quite obviously the square in general is at once a reminiscence of the garden city that was—when the merchant lived at his business premises, grew his own fruit and vegetables in the large back garden that was perhaps a relic of the well-cultivated demesne of some old monastic establishment—and a forerunner of the town-planning that is to be. For the typical London square, with its orderly building and its carefully preserved central patch of garden ground, is, even more than the park, significant of that ineradicable human craving for amenity which is finding fuller—and occasionally exaggerated—expression in the Garden City or Garden Suburb, or Town-planning movement. In the evolution of town-planning it links the past to the future.

Railway, tramway, and motor-car, and the amelioration of the hotel system, have diverted many of the London squares from their original, or, at all events, from their most characteristic purpose. In the West, it is true, one still finds whole squares occupied by aristocratic families, each having there its town house; but elsewhere the erstwhile family residence is turned into offices for professional or business men; or, in the suburbs, into lodging-houses of the Mrs. Todgers brand. Boarding-houses, of a sort, were early built somewhat in the fashion of the squares, and may

have suggested their form—if it be not profane to describe the inns of court as lodging-houses—and Lincoln's Inn Fields constitute one of the earliest and easily the most interesting of our squares, whether historically or architecturally considered. Inns of court, again, suggest a development from the old coaching inns, whose enclosed yards formed our first occasional theatres, the inns of court simulating them in this respect also.

Another respect in which the term *piazza* would have been inappropriate is its fundamental difference in character from the typical London square. Your true *piazza* (as distinguished from the American understanding of it as a mere verandah) is a flauntingly public place to which all roads lead; the London square is in this respect its antithesis. Its chief note is its exclusiveness, and its remoteness from the main travelled road. Of Golden Square, Westminster, Hatton wrote, in 1708, that it was "not exactly in anybody's way, to or from anywhere," and he might have said the same of its near neighbour, Smith Square, of which a few views are here given.

Smith Square, one may imagine, is a serene haven of refuge for jaded members of Parliament or contemplative ecclesiastics. Peace is within its borders. Some of the streets that lead to it are named after deceased Deans—we have Dean Trench Street, Dean Stanley Street, and Dean Bradley Street—and the mellow old brickwork of the homely houses, the comely doorways, with their flat white hoods supported by mildly ornamental consoles, are a winsome invitation to come within and study to be quiet. The houses in the square are not quite so interesting as those in the adjacent streets—Cowley Street and Barton Street, for instance, where the hoods are to be found in greater variety, some being merely slight extensions of the cornice, while others are big enough to suggest the sounding-board of a parish church. They look best when they carry a continuation of the cornice moulding. When they are merely inserted in the plain brickwork, one is apt to wonder instinctively how much longer they can hold up, so much do they look

Edwin L. Lutyens.



Photo: Architects' and Builders' Journal.

NEW BLOCK IN SMITH SQUARE. EDWIN L. LUTYENS, A.R.A., F.R.I.B.A., ARCHITECT.



like addenda, rather than natural excrescences. In the square there still remain a few charming old traceried fanlights; and in one doorway there is a seat on which one could see in fancy the nodding of bewigged and powdered heads over the latest number of the "Spectator," or of the "Universal Magazine." The doors themselves are in form racy of their period; the various bright colours in which they look "as fresh as paint" are distinctly of to-day. The neat little brass knockers are a study in themselves. Some of them are of most fascinating design, and it is marvellous that so many of them have escaped the attentions of Mohocks, Bucks, American millionaires, and other collectors of artistic antiquities. Many of the area railings are excellent specimens of old wrought-iron work; and the conservative spirit that broods over the place has piously kept them in position even where advancing decay has destroyed the symmetry of their elegant design. This is the case at No. 7, where, by the way, there is an extremely interesting doorway. One can imagine that this house is the oldest in the square—possibly late seventeenth century. It is rather disappointing, however, to find no link-extinguishers in the square; more especially since one noticed some excellent specimens in the Abbey precincts.

One side of Smith Square—that towards the river—is a desolate but desirable building plot, which the London County Council would be very glad to let on a ninety-nine years' lease. Athwart it and across the river one gets the best possible view (if it did not so disastrously mix one's moods) of Lambeth Palace, whose grim and ancient aspect instantly puts us out of conceit with the eighteenth-century atmosphere of Smith Square, and makes its Vanbrugh-Archer church a giddy and frivolous innovation. The nearer Abbey has not this effect, because all that can be seen of it from Smith Square is scarcely older than the square itself. Wren and Hawksmoor's towers, dating from 1735, are by seven years junior to those of the church of St. John the Evangelist.

In some of the London squares you will find as a centre-piece a statue (invariably bad) or a fountain; in

Smith Square you have a temple of peace—the remarkably designed church of St. John the Evangelist. This building has been about equally admired, vituperated, and ridiculed. Its four towers were likened by Lord Chesterfield to an elephant thrown on its back, with its four feet erect in the air, and by Charles Mathews to a dining-table upside down. The towers, it is said, were added by Archer, pupil of Vanbrugh—under whose direction Thomas Archer (died 1743) is said to have built the church—to balance the building physically; and Elmes thinks that they "would have been beautiful accompaniments to the central tower and spire intended by the architect." It has, at all events, fine Doric porticoes north and south, and the whole design has a degree of boldness and originality that is rare and refreshing in a church. It has, moreover, the further claims to distinction that it was the first church to be lit with gas; that Churchill, the satirist, was the most notorious of its curates; and that its east window is filled with ancient stained glass brought from Normandy. But the church itself is, in style, scale, and material, an alien and an intruder. Temple of peace, quotha! Its flaunting stones cease not to cry out in scorn and mockery of its meek surroundings.

The church was finished in 1728. It may be assumed that most of the houses round about it are rather earlier, one at least being of the seventeenth century. The most striking buildings—dare we say the most beautiful?—are of our own day. The most serenely Georgian of them all was designed by Mr. E. L. Lutyens, who upon this occasion has hung his tiles on the properest place for them—on the very convincingly sheltering roof; and a century hence the Tufton Street student of that day will find it difficult to convince his father or his maiden aunt that the fine blocks beginning at the corner of Dean Stanley Street were designed respectively by Messrs. Horace Field and Simmons, and Messrs. Detmar Blow and Billerey, so sympathetically have they re-captured and re-embodied the *genius loci*—the spirit of the eighteenth century.

J. F. D.



Photo: Architects' and Builders' Journal.

NORTH STREET, WESTMINSTER, WITH VIEW OF ST. JOHN THE EVANGELIST, SMITH SQUARE.

# THE SCIENCE OF ILLUMINATION.

BY L. B. W. JOLLEY, B.A.Cantab., A.M.I.C.E.

THE scientific design of the illumination of rooms, offices, etc., which up to a few years ago was considered a matter of small import, is now recognised as a separate branch of the engineering profession. This is evidenced by the inauguration of the Society of Illuminating Engineers, a society which is doing much to elevate the status of the illuminating engineer and also to bring before the public generally the importance of the correct design of lighting installations. This article has been written as an introduction to the study of scientific design, and it will have fulfilled its object if it instils sufficient interest into the reader to follow the question on broader lines.

The basis of all the calculations rests on the elementary but fundamental mathematical principle of the inverse square law. This law states that the illumination on any surface due to a point source of light varies as the inverse square of the distance of the source from the surface, and is approximately true for sources of high intrinsic brilliancy such as a metal filament lamp, when the distance from the light is more than five times the size of the source. The unit of illumination employed in this country is the foot-candle, and is the illumination obtained from one candle-power at a distance of one foot, assuming, of course, that the source is of small magnitude and that there are no objects at hand which will reflect the light.

First of all, in designing an installation it is of the highest importance to know what type of electric light fitting is to be used, and the first consideration is one of efficiency. A type of reflector which is being extensively used at the present time is the glass prismatic reflector, and this has been so designed as to give as much illumination as is required at the least consumption of electricity.

To test, then, whether an installation is designed economically or not, it is necessary

to study the units, and to this end the next few paragraphs are devoted to a comparison of the opal shade and the prismatic reflector, by means of the study of the polar curves of each. This curve is obtained as follows: The candle-power of the source of light, whether used with reflectors or not, is calculated by means of a bench photometer with the aid of mirrors rotating vertically, at different angles in a vertical plane. Below is given (Fig. 1) a curve for a metal filament lamp without a reflector, in which O is the source of light and OP is the equivalent candle-power at any angle  $\theta$ . It is of importance to note that if the polar curve is calculated with the source of light close to the screen at which the readings are taken, the inverse square law no longer holds and the resulting calculations will be inaccurate.

The method of calculating the illumination on a plane along a line is as follows: If O is the source of light (Fig. 2) and  $I\theta$  the equivalent candle-power given by the source at any angle  $\theta$ , the illumination at a point P on a plane SS at right angles to the lines OP, is, according to the inverse square law

$$\frac{I\theta}{OP^2}$$

The horizontal illumination at P is manifestly

$$\frac{I\theta}{OP^2} \cos \theta, \text{ which equals } \frac{I\theta}{ON^2} \cos^3 \theta$$

The value of  $I\theta$  is obtained from the polar curve, and that of  $\cos^3 \theta$  calculated from a book of tables, and ON, which is the height of the source of light above the working plane, is a constant quantity.

An example showing the use of the above formula is given below: The polar curve A in Fig. 3 has been obtained from a 50 c.p. lamp with an opal shade, and from the curve

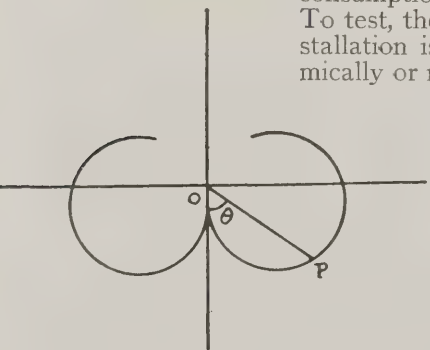


FIG. 1

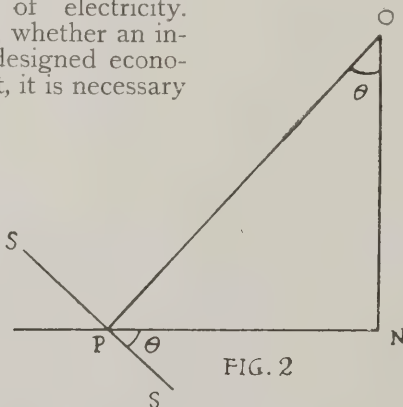
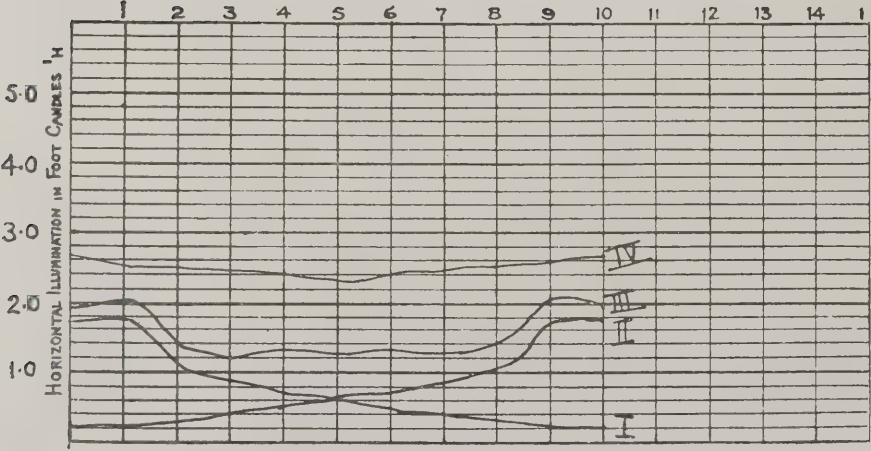


FIG. 2



D = HORIZONTAL DISTANCE FROM SOURCE OF LIGHT IN FEET

FIG. 4

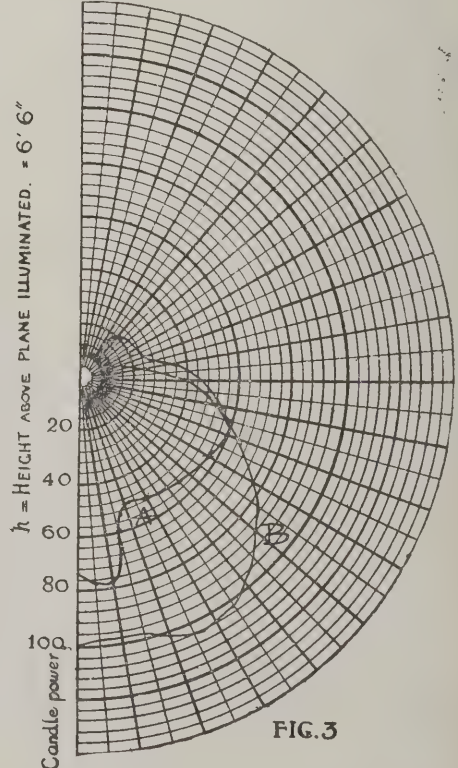


FIG. 3



the values CP in table E are obtained. Column H, table E, has been calculated from the formula above, viz.,  $H = \frac{CP (10)}{ON^2} \cos^3 \theta$ , and curve I,

Fig. 4, indicates the illumination on the plane. Curve II., which is curve I. reversed in direction, gives the illumination due to another similar lamp 10 feet away, and curve III. shows the resulting illumination due to both lamps.

TABLE E.

D	$\phi$	$\cos^3 \phi$	C.P.	H
0	0	1.000	74	1.75
1	9	.96	78	1.78
2	17.5	.87	52	1.07
3	25	.74	50	.88
4	32	.61	52	.75
5	38	.49	53	.62
6	42.5	.40	53	.51
7	47.5	.31	54	.40
8	51	.25	55	.33
9	55	.19	56	.25
10	57	.16	56	.21

TABLE F.

D	$\phi$	$\cos^3 \phi$	C.P.	H
0	0	1.00	100	2.37
1	9	.96	98	2.22
2	17.5	.87	100	2.06
3	25	.74	104	1.83
4	32	.61	103	1.50
5	38	.49	100	1.16
6	42.5	.40	96	.91
7	47.5	.31	90	.66
8	51	.25	86	.51
9	55	.19	82	.37
10	57	.16	80	.30

Polar curve B (Fig. 3) is a typical curve of one of the many types of reflector on the market of the prismatic type; it has not been calculated from any one reflector, but is similar to the kind of curve obtained. Table F shows the calculations involved, and curve IV. (Fig. 4) indicates the illumination due to two lamps with reflectors spaced 10 feet apart. A consideration of curves III. and IV. (Fig. 4) will show the immense advantage gained in illumination by the use of a scientifically constructed reflector, and in this one case the variation of illumination along the line on the working plane between the two lamps is only 15%, whereas in the case of the opal shades it is 45%; and moreover an average of 75% more illumination is obtained by the use of the reflector.

Polar curves of a great number of different types of reflector are to be found in many of the catalogues of the firms who supply electric light fittings; but too much stress must not be laid on the value of the polar curve as a means of calculating the maximum and minimum values of the illumination in a room, as exact calculation is obviously impossible owing to the numerous difficulties attending the problem; but on the other hand a careful consideration of details enables the engineer to design an installation with a remarkable degree of success.

In regard to the general question of illumination such difficult problems as, for instance, reflection from walls and ceiling have to be considered, and in this connection it is interesting to study an example of a small room, say, 15 ft. square, lit by one 100 c.p. lamp, although of course I do not mean to suggest that one 100 c.p. lamp would be an efficient method of lighting such a room. Suppose that 15% of the light from the lamp passes on the ceiling and 25% on the walls, and also that the ceiling has a reflective power of 80% and the walls 40%. The light reflected from the walls and ceiling is therefore equivalent to 22 candle-power, and if the walls were of a light colour with a higher reflective power the reflected light might be 32 candle-power equivalent. This only allows for primary reflection, and it is most probable that the figure might be higher. Thus it will be seen that the effective candle-power of the lamp may be as high as 132 in a room as mentioned above, and consequently a higher illumination would be obtainable.

A table of a few of the values of the coefficients of reflection is given below:

White ceiling from .....	70—80%
Fooscap paper from .....	70%
Yellow wall paper from .....	40%
Light blue paper from .....	25%
Brown paper from .....	20%
Deep chocolate paper from ....	4%

From these values it will be at once apparent that the annual consumption of electrical energy will be largely affected by the type of wall paper chosen. This is a fact that is often overlooked, but it is a truth nevertheless that in many cases where a 50 c.p. lamp is used at present a 32 c.p. or even a 25 c.p. lamp might be used if the decorations were of a lighter character.

## CORRESPONDENCE.

*The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents.*

*Correspondents are asked to be brief and to write on one side only of the paper.*

### *The Cheap Cottage Problem.*

*To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.*

SIRS,—In reply to the criticism on the planning of my cheap concrete cottage, by Mr. Caulfield [March 19th, p. 297], I certainly do not take umbrage at any criticism of my work, as, being a keen critic myself and an enthusiast on all matters relating to building construction, I am ever willing either to learn or to impart such knowledge as experience teaches.

I therefore give a few reasons why I did not adopt Mr. Caulfield's method of planning. When I set myself the task of producing a really cheap cottage I dwelt long on the idea of doing without a passage in order to reduce the size of the building and cost, and at first sketched a plan similar to that shown in Mr. Caulfield's article; only I made a porch at the front door, as it is not altogether convenient to be locked in one's bedroom until the front entrance is at liberty. I also tried to forget my professional existence, and entered into the spirit of the thing from the tenant's point of view. Coming in contact, as I do, with the dwellers of model cottages, I am constantly being told that we architects forget entirely the existence of a "pram" or bicycle, so I listened to the voice of wisdom and constructed a passage. Here the pram and bike can rest in peace and the dwellers can find room to hang up their outer garments. I also prefer to go to bed with pure air in my bedroom and not the smell of cooking or washing, and the despised passage greatly assists matters in this direction.

I could easily have placed my bath in the scullery, which I am doing in some instances; but here, again, I have been reproached for the want of sympathy with the working classes, who require more washing, but are unable to get it because of the inconvenience.

The position given in Mr. Caulfield's plan is certainly convenient, as it enables the bather to open the back door without the trouble of getting out of the bath, but it does not add to the comfort of the bath when the doors of bedrooms 1 and 2 display cracks through the near proximity of the copper.

The clustered chimneys look well on plan, but will not work with more than two together on low shafts of one-storey buildings; and even then it is difficult. I personally should object to my bedroom being used to ventilate the kitchen flue. I notice also that the coal store has changed places with the larder, but I prefer north light and ventilation, especially if cottages are to be built semi-detached.

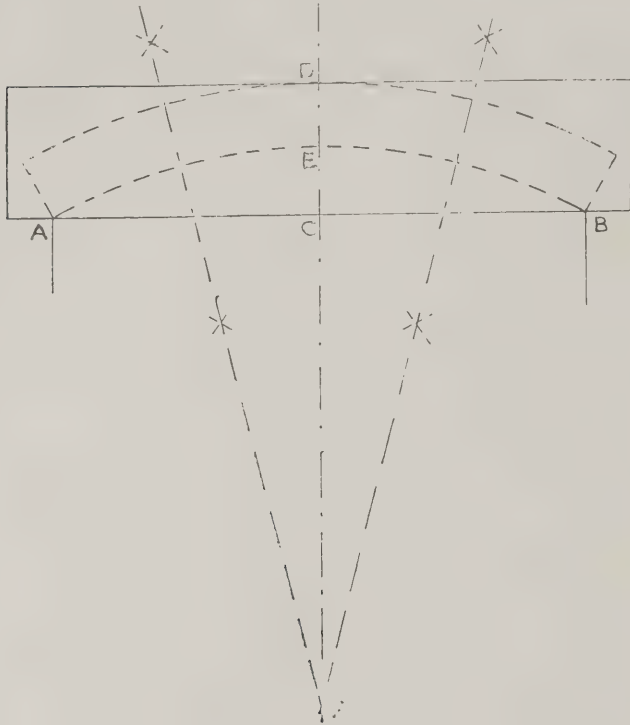
I think, on the whole, after due consideration, I would also prefer handing the bedroom slops out of the window on occasions of illness, if objection is taken to going down the passage (though a slop-pail with a lid is not a very objectionable utensil, especially when we consider that the slops usually have to be brought down the stairs and through the house in most workmen's dwellings). At any rate, this is preferable to going to a damp bed every washing day, and the smell of soap-suds is not the pleasantest of odours to dream upon. I, however, leave the matter in the hands of your readers, to judge for themselves if they intend building on similar lines.

WM. J. SWAIN.

*The Strength of Circular Arches.*

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—Many years ago, in the discussion on a paper at the Architectural Association (I think by Mr. F. R. Taylor), I pointed out the principle the concealed arch contained in lintels and camber arches, and showed by calculation that in this matter, as in others, Nature chooses the outline that gives the maximum resistance.



Assuming that the abutments are absolutely rigid, the concealed arch may be found as follows: Let A B be the span of lintel or any sort of flat or camber arch, with any angle of skewback. Draw the centre line and bisect the depth C D in E (in the case of a cambered arch the point C will be on the springing line); and from A and E, and E and B as centres, draw intersecting arcs to give the centre F. From F, with radius F E, draw the intrados of concealed arch, and from F, with radius F D, draw the extrados. Produce F A and F B to form the concealed skewbacks. These will be the same whatever actual skewbacks may be provided. Your correspondent L. E. W., March 19th, p. 297, will now see why his Fig. 2 was able to carry a load with the upper bricks in the centre omitted. In this figure the concealed arch would have 3 in. rise and be 3 in. deep, with skewbacks found as described above.

HENRY ADAMS.

## OUR PLATES.

*National Shawmut Bank, Boston, U.S.A.*

THIS is a skyscraper, and it shows very clearly how successfully American architects have at length redeemed that class of building from the former reproach of unsightliness. That the modern tall building may have much more than its Brobdingnagian size to recommend it is proved delightfully in the stately façade of the Shawmut bank, which demonstrates also the apparently limitless adaptability of Classical details, and its appropriate application to workaday uses. Used with knowledge, it seems incapable of vulgarisation or debasement in any service. Messrs. Winslow and Biglow have in this instance given admirable expression to the simplicity

and strength of the Doric Order, but have not insisted on its severity, the treatment being a little more decorative than that of the Temple of Theseus at Athens, from which the columniation suggests its descent. (See page 340.)

*Details of Sculpture from the Opera House, Paris.*

One of the *aïls-de-bœuf* on the dome of the wing building of the Paris Opera House is shown on page 351. The griffin and its companion winged monster, with their lithe and sinuous hind-quarters, muscular forequarters, and gracefully curved necks, are wonderfully expressive of vigour and speed; while the mouldings which they so symmetrically support, and the swag beneath them, are nicely consistent in scale and treatment. French feeling informs the detail throughout; and it thus illustrates, in its proper degree, what Mr. Fernand Billerey so neatly expressed in his recent paper read before the R.I.B.A.—that “Garnier has tried to be as French as he could after nearly a century of Greek, Roman, Italian, and Byzantine work, and after his own restoration of the Greek temple of Juno at Ægina.” (See page 351.)

*House at Reigate.*

The road at the end of which this house stands ends in a curved return with no outlet. The boundary of the site in front of the house has simply been defined with posts and chains, so that the public road, used only for access to the house, has all the appearance of being private. The curved line of site suggested a long house embracing the curved frontage as much as possible. The materials used are grey stock brick and red dressings, with wood windows and brown tile roof. Advantage has been taken of the fall of the ground to get a room opening on to the garden. There is a good terrace at the back finished with a wall screening a wood shed and securing privacy from the next house. Mr. P. Morley Horder, F.R.I.B.A., of London, W., was architect. (See pages 353 and 361.)

*House at Bickley, Kent.*

A house at Bickley, Kent, is the subject of No. XXI. of our series of working drawings by well-known architects. The particulars of construction and materials are sufficiently indicated on the drawing on pages 354 and 355.

*R.I.B.A. Problems in Design.*

A fire-resisting lock-up warehouse, on a site 40 ft. by 80 ft., with two frontages 40 ft. wide to two parallel streets, was the problem set as Subject VI. (b) in the alternative scheme of Testimonies of Study for the Final Examination of the Royal Institute of British Architects which came into operation in November last. The site of the warehouse is between buildings, so that no light can be obtained on the 80-ft. sides. The building is to have six storeys, and each floor is to be capable of sustaining a load of 4 cwt. per super foot. The drawing we reproduce this week is by Mr. R. S. Dixon, of the Liverpool University School of Architecture. (See page 356.)

*The Bibliothèque Ste. Geneviève.*

Situated near the Panthéon, the Bibliothèque Ste. Geneviève occupies the site of the ancient Collège Montaigu, and was first founded in 1624. Henri Labrousse, the architect of the present building, which was erected in 1843-9, was born in Paris in 1801, and died in 1875. He was a pupil of Vaudoyer and Lebas, and won the Grand Prix de Rome in 1824 with a “Cour de Cassation.” His fine drawings of the Temple of Neptune at Pæstum are preserved at the Institute because of the revelation they make of “the true import of Doric architecture in all its magnificence,” Labrousse having discovered traces of polychromatic work on the exterior. (See Centre Plate.)







BIBLIOTHÈQUE STE. GENEVIÈVE, P





RIS. HENRI LABROUSTE, ARCHITECT.





Detmar Blow and Billerey.

Horace Field and Simmons.



*Photo: Architects' and Builders' Journal.*

NEW HOUSES IN SMITH SQUARE, WESTMINSTER. HORACE FIELD, F.R.I.B.A., AND EVELYN SIMMONS; AND  
DETMAR BLOW AND BILLEREY, ARCHITECTS.







DETAILS OF SCULPTURE FROM THE OPERA HOUSE, PARIS.—X.

(See page 348.)



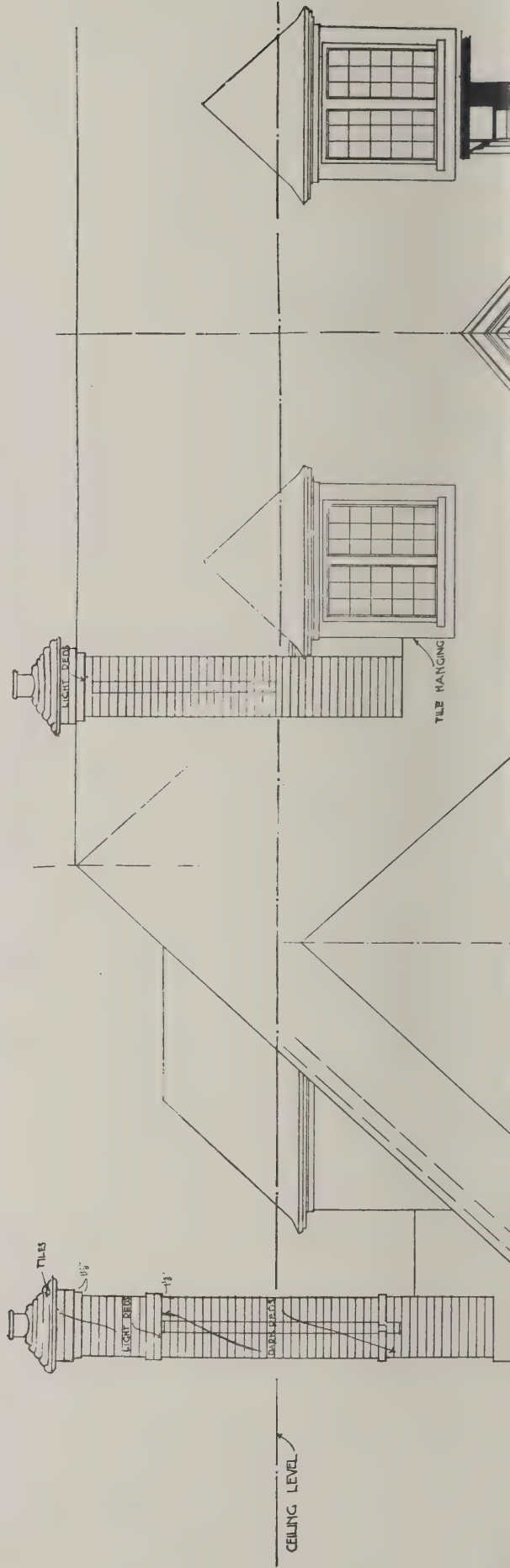
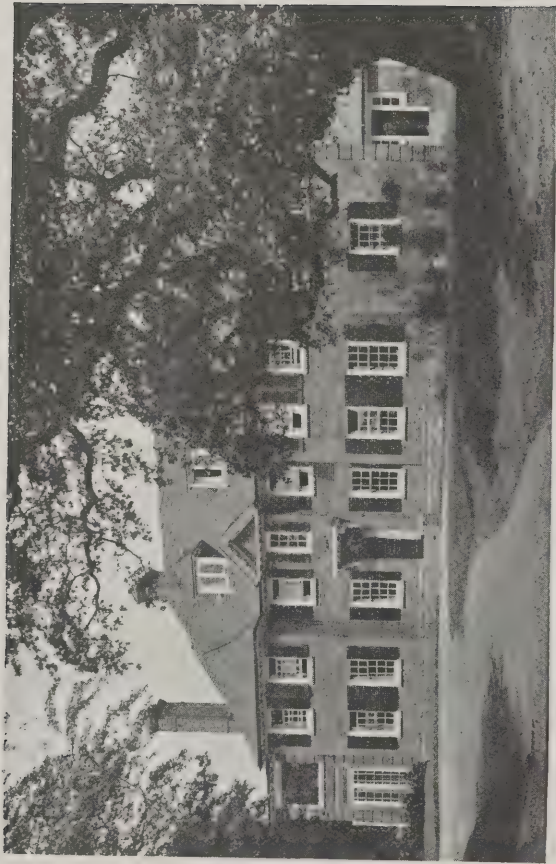




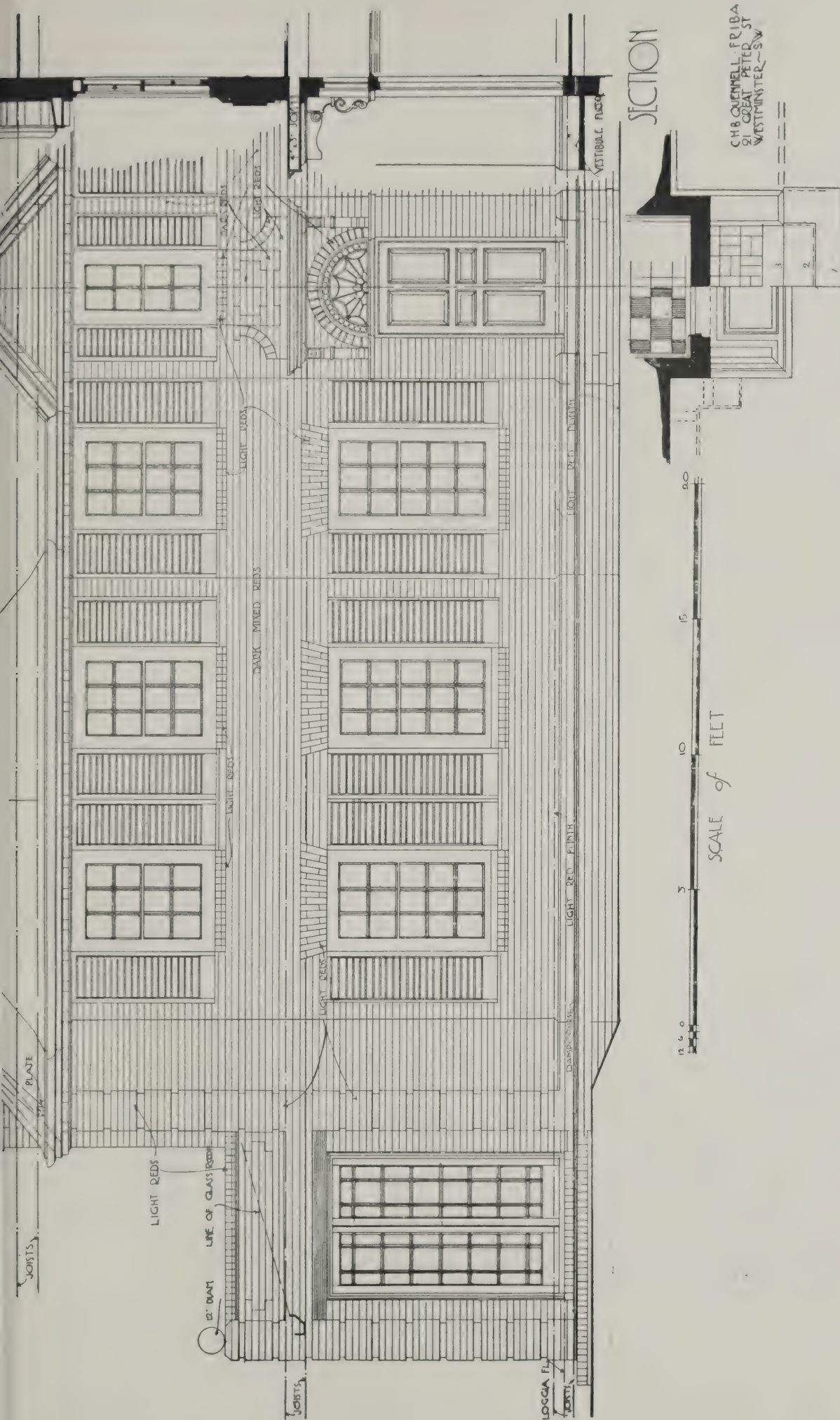
MODERN DOMESTIC ARCHITECTURE. HOUSES OF INTERMEDIATE SIZE. II.—HOUSE EAT REIGATE: ENTRANCE FRONT.

P. MORLEY HORDER, F.R.I.B.A., ARCHITECT.

(See pages 348 and 361.)

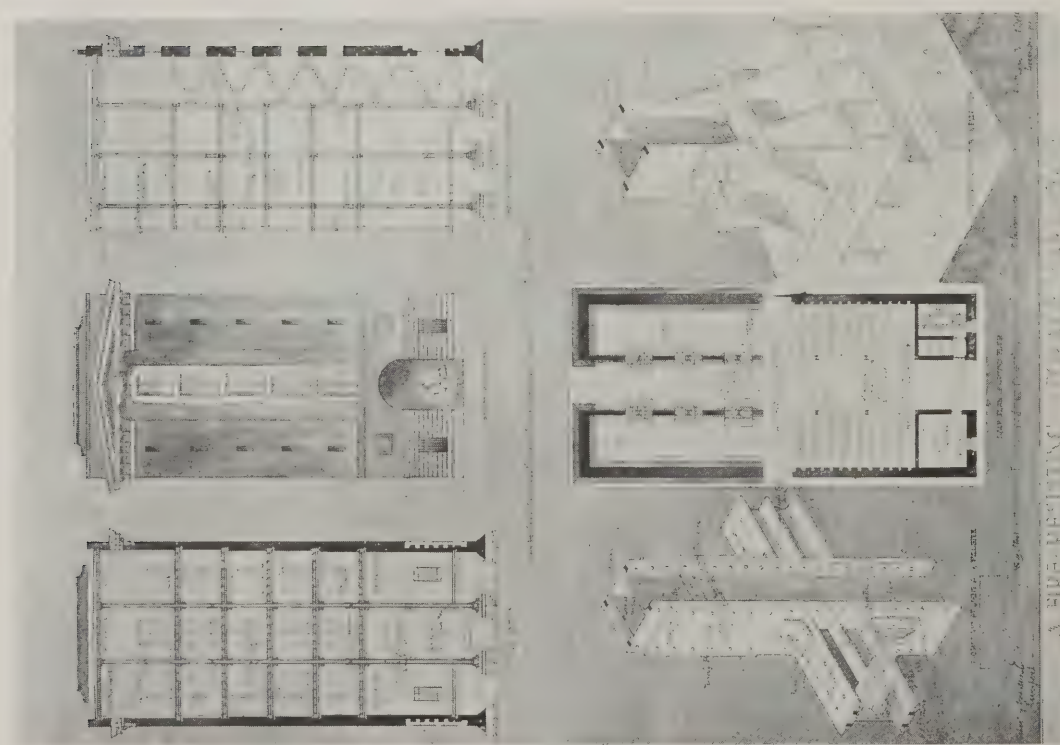
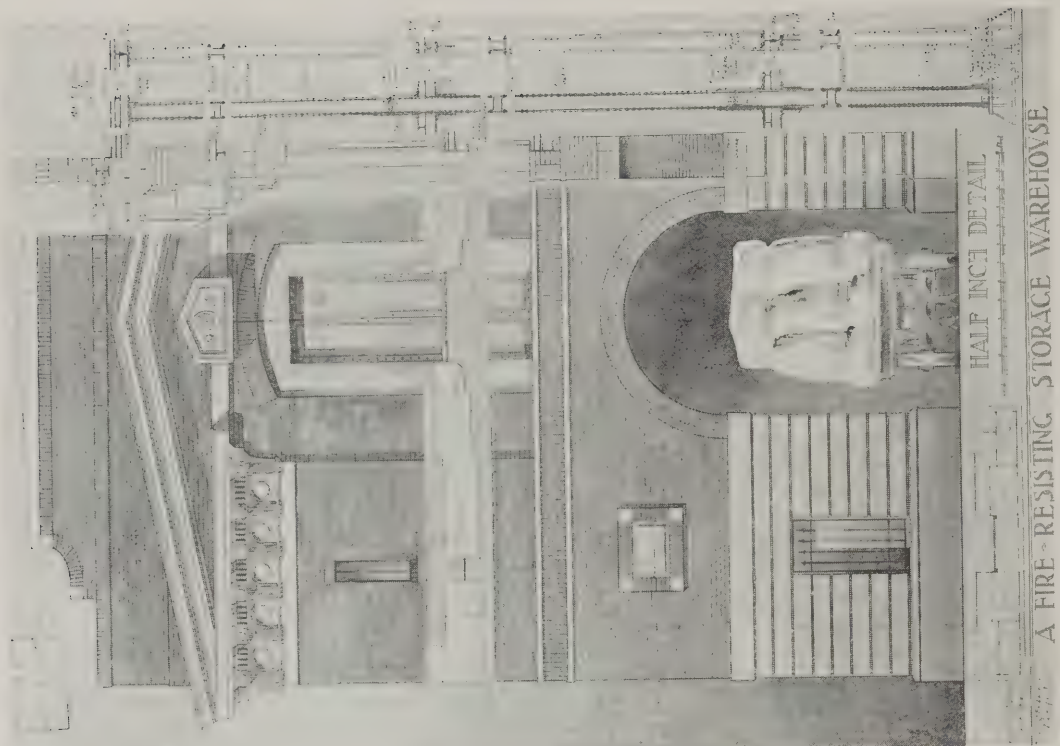






WORKING DRAWINGS BY WELL-KNOWN ARCHITECTS. XXI.—HOUSE AT BICKLEY, KENT. C. H. B. QUENNELL. F.R.I.B.A., ARCHITECT.

(See page 348.)



TESTIMONIES OF STUDY FOR R.I.B.A. FINAL EXAMINATION: APPROVED DESIGN. SUBJECT VI. (b).—A FIRE-RESISTING LOCK-UP WAREHOUSE. BY R. S. DIXON.  
(See page 248.)



## MODEL ANSWERS TO R.I.B.A. EXAMINATION QUESTIONS.

## INTERMEDIATE EXAMINATION.

BY G. E. FRANCIS.

SIMPLE APPLIED CONSTRUCTION:  
THE PROPERTIES AND USE OF  
ORDINARY BUILDING MATERIALS.

Time allowed, 3½ hours.

(1) Describe the difference between hydraulic and common lime; state the properties of each and give examples showing where each might appropriately be used.

*Answer.*—Common, rich, or fat lime is the calcined product of very nearly pure carbonate of lime, not containing sufficient impurities to affect the slaking or setting actions.

It is burnt in either continuous or intermittent kilns. The resulting powder slakes furiously, and expands in two or three times its original bulk.

It requires to be mixed with a great deal of sand to prevent excessive shrinkage, and does not set, but merely hardens on the surface.

For these reasons it should only be used for internal work, such as plastering, etc.

Hydraulic limes are those which have the power of setting without drying or access of air.

This power varies considerably, and the chief constituent imparting this property is found in the majority of natural limes to be clay.

The nature and amount of the impurities determine the slaking power and hydraulicity of the lime, and are therefore divided into three classes.

Feebly hydraulic, containing 5 to 15 per cent. impurities. Slakes slowly.

Firm in twenty days and in twelve months as hard as soap.

Ordinarily hydraulic, containing 15 to 20 per cent. impurities. Shows no signs of slaking for several hours, finally cracks all over and develops heat and fumes.

Firm in eight days and in twelve months as hard as soft stone.

Eminently hydraulic, containing 20 to 30 per cent. impurities. Very difficult to slake, commencing after long and uncertain periods.

Firm in twenty hours and in six months can be worked like a hard limestone.

Grey chalk or stone lime is of a feebly hydraulic character.

Blue Lias lime, Lyme Regis, in Dorset, is eminently hydraulic. It is used in all good general brickwork, etc., when strength and durability are required, especially for work below ground.

(2) Give a short specification with sketches where required of vertical tiling-hanging as applied:—

A. To a brick wall,

B. To timber framing,

showing an internal and external angle.

*Answer.*—Cover the walls as shown on drawings with approved hand-made sand-faced red roofing tiles of true shape and even colour, free from fire cracks and other defects, each tile to have two nail holes and two strong nibs.

Lay to a 4½-in. gauge and bed in lime and hair mortar (when on brick walls), and fix with stout galvanised wrought iron pins with broad heads, on ¾-in. by 1½-in. strong oak battens.

Provide all angle tiles as necessary for internal and external angles.

Allow for all cutting and eaves laid double.

(3) Describe and sketch where necessary the following:—

A. A secret nailed floor.

B. A drip in a lead gutter.

C. A dowelled joint.

D. A bolection moulding.

*Answer.*—A secret nailed floor is used in the best work. It presents a fine surface, prevents draughts, and where laid on wood joists prevents the passage of dirt and water through on to the plaster ceiling below during cleaning operations.

A drip in a lead gutter should occur at not more than 10 feet intervals, and is usually 2 in. deep.

The method shown in sketch is the practical method of forming the drip, although more elaborate methods are shown in text books.

A dowelled joint is used in several places, and two examples, one in the case of a dowelled floor, and the other a dowel between a stone mullion and cill, are shown.

A bolection moulding is frequently used in good work. It should be fixed to the frame only.

(4) A staircase in a dwelling-house is 18 feet by 10 feet between the brick walls.

This space must include the landings at top and bottom of stair. Design a stair rising 10 feet floor to floor to fit this space. The drawings required are one plan and one section to half-inch scale.

The construction should be indicated, but importance will be attached to the proportions

and dimensions, such as the going of the steps, width of stair, height of hand-rail, etc., rather than the elaboration of design.

The construction should be indicated, but importance will be attached to the proportions and dimensions, such as the going of the steps, width of stair, height of handrail, etc., rather than the elaboration of design.

*Materials:* Wood, stone, or concrete.

*Answer.*—The staircase is shown on drawing.

The material selected is oak, and the following proportions and dimensions are used:—

Width of stair between strings, 3 ft.; height of handrail above nosings of treads, 2 ft. 9 in.; treads, 11 in.; risers, 6 in.

The object has been to obtain access to as many rooms arranged round the hall as possible.

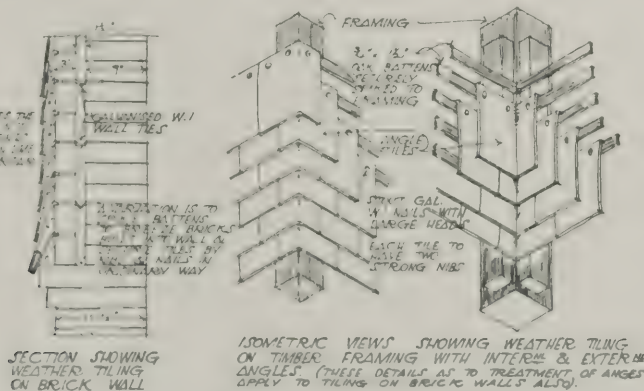
(5) Make a drawing to a scale of 1 inch to the foot showing the damp-course and footings for

A. A 14-inch brick wall with solid concrete floor.

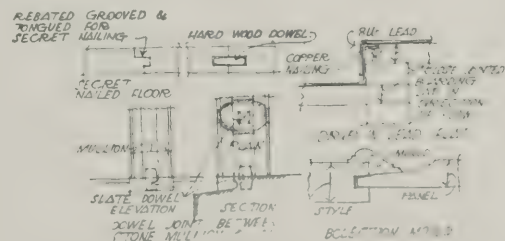
B. A 16-inch hollow wall with joisted floor.

*Answer.*—The point of importance is to keep the damp-proof courses in both cases at least 6 in. above the ground level.

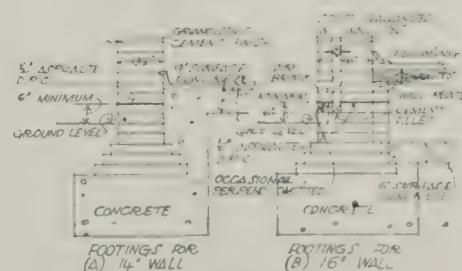
[The paper in the Intermediate Examination for registration as Student R.I.B.A., to which the above questions and model answers pertain, was taken at the morning sitting, Monday, November 25th, 1912. The first of this series of model answers was given in our issue of March 19th; the second, on March 26th. These model answers are being published at the request of numerous correspondents, and it is believed that they cannot fail to be of value and interest to others besides the large numbers of students who are directly interested in these particular examinations. In fact, the architect never ceases to be a student; and even the veteran is glad to see what the juniors are doing, and to refresh his own memory.]



Question 2.



Question 3.



Question 5.

(For illustration to Question 4, see next page).

## SEASONABLE HINTS ON HOUSE PAINTING AND DECORATION.

BY ARTHUR SEYMOUR JENNINGS, F.I.B.D.

*The White-lead Question.*

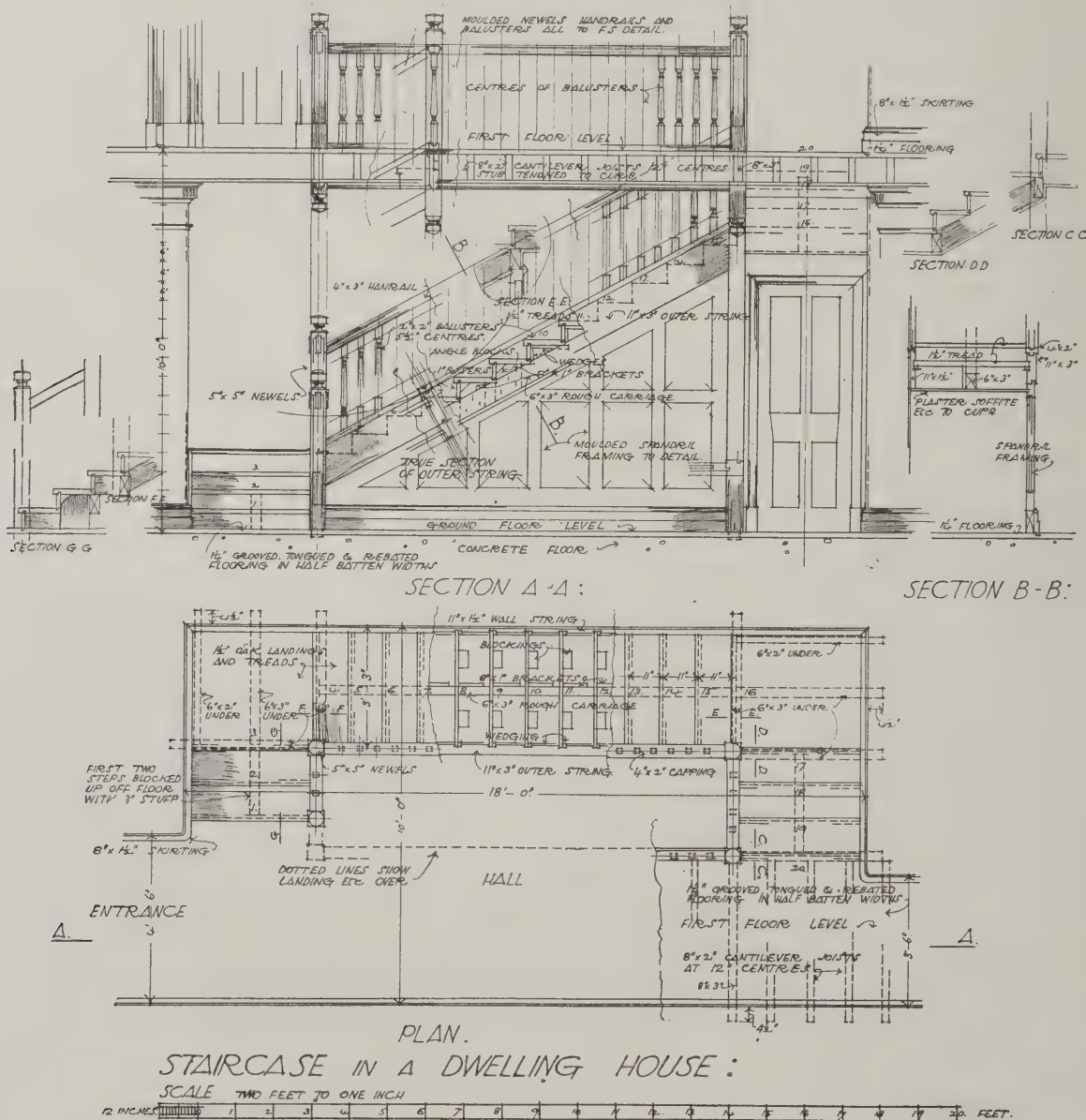
THE rivalry between white-lead and other white pigments grows more pronounced as time goes on, and many lectures have been delivered in different parts of the country on one side or the other. Unfortunately, the lecturers as a rule take an extreme view either in favour of white lead or in opposition to it. Perhaps the most sensible view of the situation is that expressed by a prominent West-End decorator, who said recently that, there being every likelihood that the forthcoming report of the Departmental Committees on white-lead poisoning would recommend either prohibition of lead or at least very irksome regulations concerning its use, it was advisable that decorators, architects, and property-owners should without loss of time make themselves acquainted with other pigments which might, if it became necessary, take its place. Following out this idea, a lecture

illustrating in a practical manner the advantages and shortcomings of all the principal white pigments will be given before the London Association of Master Decorators at the Holborn Restaurant on April 14th. It should be very interesting and instructive; certainly it is opportune.

*Painting Troubles and How to Overcome Them.*

Certain troubles or defects on painters' work which appear to be inseparable from the work of repainting may at this time be opportunely dealt with. They relate to: (1) Painting in oil colour on new Portland cement; (2) distempering or using water paints on patent plasters, such as adamant, sirapite, etc., (3) killing smoke and other stains on plastered walls and ceilings, and (4) obtaining a flat (*i.e.*, glossless) finish, which will last when exposed on outside work. The usual course followed with Portland cement is to allow it

to stand for from six to twelve months before the paint is applied. If, however, it is desired to paint soon after the work is completed, it can be safely done provided that two coats of a solution of zinc sulphate, commonly known as "white vitriol," are given previous to the paint being put on. It will then be found to stand quite well. The finished surface of the patent plasters such as those above-named is very smooth, almost like glass, and they possess the advantage of setting quickly and becoming very hard. Speaking generally, it is almost impossible to get distemper or water paint to adhere to this surface unless some precautionary measure is taken. The course recommended by the manufacturers, which I have many times found to be quite effectual, is, to give the plaster just as soon as it is in a condition to resist the pressure of the brush a good coat of sharp oil colour—*i.e.*,



MODEL ANSWERS TO R.I.B.A. INTERMEDIATE EXAMINATION.

(Question 4. See page 357.)



ordinary oil paint mixed with very little oil and plenty of turpentine, with the addition of a little gold-size to act as a binder. It is useless to apply this coat the week or even the day after the plaster is rendered. It must be put on before the plaster is set, and it will then form part of the plaster itself and give a ground which may safely be distempered or painted upon. The colour of the sharp paint should be almost, but not quite, the same as that of the finishing coat.

#### *Treatment of Stained Ceilings.*

The method of killing smoke and other stains on ceilings and plasterwork generally is first to wash off with a borax solution, then thoroughly to wash with clear water; after which a good coat of pure white shellac varnish should be given. This, being a spirit, will dry very quickly. A coat of flat white paint should then be given, and the surface will take distemper splendidly. Of course, it is not necessary to apply the white shellac and flat paint over the whole of the stained ceiling or wall, but only over those parts which are badly stained. To obtain a durable flat paint for outside use is somewhat difficult, because the oil used in ordinary paint must be omitted, and it is the oil which acts as a binder. However, if gold-size is added, it will give the necessary binding quality, but it must not be used too freely. The same method is followed in repainting baths which are not to be stored. The surface having been thoroughly rubbed down and washed quite clean, three, four, or even more very thin flat coats of ordinary paint are given, with rubbing down by means of glass-paper after each. A final coat of special bath varnish, or enamel if preferred, will give a surface which will last a long time provided that it be left fully a week before it is used and that the first time it is filled at least one-third with cold water before the hot water is turned on.

#### *Properties of Japanners' Gold-Size.*

Some explanation may be given here as to the nature and properties of gold-size, or, to use its full title, "japanners' gold size," because there are various other varieties, such as oil, water, matt, and isinglass gold-sizes. The first-named is made by boiling linseed oil for a couple of hours and then adding dry red-lead, litharge, and copperas. This is kept boiling for some hours, when gum animé and more raw linseed-oil is added. A gold-size prepared in this way dries rapidly, twenty minutes being an average time. When used by gilders a little ochre is usually employed to give body and colour. The material is useful for making paint dry hard quickly, but if too much is used it will destroy the paint entirely.

#### *Estimating Cost of Painters' Work.*

In estimating the cost of painters' work generally, the architect is often at a loss to know how far certain materials will cover. The following figures will be found to be useful under such circumstances, although no hard-and-fast rules can be laid down, as so much will depend upon the exact nature of the surface—whether it is more or less absorbent than usual, etc. The cost of labour may be taken approximately at double that of the cost of the materials; but this, again, will vary considerably with the quality of the work—as, for instance, cottage property as compared with high-class work in a West-End mansion. One hundred-weight (112lb.) of white-lead mixed with the necessary thinners, say, 13 lb. of patent (paste) driers, 3½ gallons of linseed oil and three

quarts of turpentine, will cover about 500 square yards on an absorbent surface such as plaster or stone. On new wood over the priming coat or on old painted work, the paint will cover about one-third more, the figures being ¾ cwt. white-lead, 7 lb. patent driers, 1¼ gallons of linseed oil, and a little more than 1 quart of turpentine. It will be noticed how much more thinners are required when the paint is applied to an absorbent surface than is the case when it is comparatively non-absorbent. The best grades of enamel cover from seventy to eighty square yards on a properly prepared surface, which should always include a coat of special undercoating usually supplied by the enamel manufacturers and applied immediately under the enamel.

#### *Success in Enamelled Work.*

In passing, it may be said that the success of enamelled work largely depends upon bringing the work up to a perfectly level surface, and upon using a proper undercoating. Enamels are made on a base of pure zinc oxide, and the undercoats also consist of a zinc compound (usually lithopone), which possesses the advantage of being very fine and very white. It is desirable to regard the enamel as a varnish, or at least to consider it as being only semi-opaque. It will thus be seen that if the undercoat is quite smooth and white, the best results will be obtained. Undercoats, as a rule, cover well—85 to 90 square yards per gallon being a fair average. There are so many grades of varnish that the covering capacity necessarily varies considerably; but from 85 to 100 square yards per gallon may be safely taken as an average on non-absorbent surfaces; and, of course, with a very few exceptions, they should never be applied to a surface which does not allow for absorption. When a very brilliant result is desired, rubbing varnish must be used in two or three coats, the undercoats being rubbed down with very fine powdered pumice-stone and water, a piece of felt or a felt pad being employed for the purpose. Sometimes the work is polished with rotten stone and linseed oil, a final rubbing being given with fine wheat flour. A special oil rubbing varnish is made for use by this method, which is intended for table and counter tops where glasses containing whisky or wine are likely to be set down. Ordinary varnish would be quickly destroyed by the alcohol, but the oil varnish referred to successfully resists the action. There is on the market a material called "Priming Varnish," which may be used with great advantage when great brilliancy is desired and the rubbing process is too expensive. It is applied on the paint or other surface and shows up the subsequent coat of ordinary varnish very well indeed. The best ready-mixed paints—and there are several very excellent brands now made which were impossible to obtain a few years back—cover about 50 square yards on the first coat, 60 to 65 on the second, and 75 to 85 on the last coat per gallon in each case. Water paints are usually supplied in paste form, and are reduced to a working consistency by adding either petrifying liquid or plain water. 28 lb. of paste when thinned down will cover from 120 to 140 square yards. The first coat on the plaster is usually thinner than the finishing coat, so that the above figures will answer for both.

#### *New Wall-paper Patterns.*

In the new wall-paper pattern books there are this year several novelties worthy of notice. Among them may be mentioned a plain stippled paper made in a

large variety of colours, which will be found exceedingly useful as a background for furniture and pictures. Ingrains, which were formerly used for this purpose, are rapidly becoming obsolete. Their prevailing fault was that the colours being added to the pulp from which the papers were made were so fugitive that they faded away or changed their hue considerably even in a few weeks. This not only destroyed entirely the whole colour scheme, but in cases where it was desired to change the position of the pictures it meant repapering the whole room. The stippled papers referred to, however, although somewhat expensive, are quite permanent and give charming effects of a quiet and satisfying character. They may be used very successfully with narrow ornamental bands placed immediately under the picture moulding and above the skirting. In addition the same bands may be used vertical at the angles of the room at a distance of 4 or 5 inches from the corner, thus giving something of the effect of panelled work at a much smaller outlay. It may be mentioned that the use of bands, say, 2, 2½, or 3 in. in width, is rapidly increasing, and they can, of course, not only be used in connection with stippled papers, but also with very narrow striped and "powdered" or diaper effects.

#### *Panelled Work,*

arranged in such a manner that the width and height can be regulated to a nicety according to the size of the room continues a favourite, while "extension" friezes are also popular because they assist so greatly in producing a piece of decoration which has all the appearance of having been designed especially for the room in which it is used. This is done by centering the most prominent feature of ornament and in taking care to avoid the cutting of the design at the corners. Black-grounded papers are still great favourites, and when well covered with fairly bright ornaments certainly give admirable effects.

## SOCIETIES AND INSTITUTIONS.

### GLASGOW INSTITUTE OF ARCHITECTS.

Mr. John Keppie, F.R.I.B.A., last week delivered the third lecture of a series at the Rooms of the Institute of Architects, Elmbank Street, Glasgow, the subject being "Some Notes on a Recent Visit to Spain." Mr. A. N. Paterson, F.R.I.B.A., the president, occupied the chair. The route followed was—Burgos, Segovia, Madrid, Toledo, Cordova, Seville, Granada, Ronda, and Algeciras. A short résumé of the history of each of the towns visited was given, and the lecturer varied the historical portion of his paper with personal incidents. The architectural characteristics of each of the towns were critically treated, and the peculiar genius of the Spaniards and the Moors as shown in their architectural remains was analysed. Mr. Keppie gave a detailed account of a bull-fight at Madrid in the famous bull-ring there, in which the whole drama was vividly described. The lecture was illustrated by slides made from snapshots taken during the visit by Mr. James Craig, Annan.

### LIVERPOOL ARCHITECTURAL SOCIETY.

#### *Mr. J. C. Powell on Stained-Glass Work.*

At a meeting of the members of the Liverpool Architectural Society Mr. James C. Powell read a paper entitled, "Painted



Glass in Relation to Architecture." Mr. Powell made a strong plea for the simplicity of colour schemes, and he showed how necessary it was that the architect and the glass painter should work hand in hand if the best results in stained-glass work were to be obtained. The art of glass-painting has now been in practice for over 1,000 years, and Mr. Powell traced its development from its earliest days. He has been responsible for most of the stained-glass work in the new Lady Chapel of the Liverpool Cathedral, and he displayed drawings of the four great side windows of the Cathedral, which are now in course of preparation. He explained that the windows would not consist of a lot of columns jumbled up, so to speak. The chief feature was the simplicity of the colour scheme, and each window would have a distinct predominant colour.

#### BRISTOL MASTER BUILDERS' ASSOCIATION.

##### *The Eighteenth-Century Architecture of Bristol.*

A lecture was given by Mr. C. F. W. Denning, before the Bristol Master Builders' Association, on "The Eighteenth-Century Architecture of Bristol," at the Hannah More Hall, Park Street. Mr. Denning said that, apart from Redland Green Chapel, All Saints', and Christ Church (City), there was very little work of the eighteenth century in the fabric of the churches in Bristol, but many of them possessed a wealth of wood and iron work of the period. At no period of English architecture had there existed a more perfect knowledge of the technical arts of building than in the eighteenth century, and at the dawn of that period there was great building activity in Bristol. He then, by means of lantern slides, showed some fine examples of eighteenth-century architecture, and pointed out the various features, remarking that while the work of the eighteenth century was not always interesting, it was never objectionable.

#### INSTITUTE OF SANITARY ENGINEERS

##### *Dr. Sidney Lawrence on an "Ideal Workman's House."*

In an address given before the Institute of Sanitary Engineers at Caxton Hall, Dr. Sidney C. Lawrence, medical officer to the Edmonton District Council, put forward ten conditions necessary for securing "my ideal workman's house." They were as follows:—

1. No plot of land less than 20 ft. frontage and 50 ft. deep.
2. Every chimney in an inner wall.
3. A larder with openable window—on the north side, if possible.
4. Each house with a backway (or side-way)—so that coals may be taken in and refuse taken out by some way other than the front door.
5. A coal-house and movable dustbin in the backyard.
6. No quarters for animals within 10 ft. of the house.
7. Every room properly ventilated.
8. Not less than three bedrooms—the abolition of the "best parlour."
9. A bath in the scullery.
10. A branch from the water-main over the scullery sink.

Then, added Dr. Lawrence, the architect, builder, and owner could shake hands and say with just pride that they had followed the advice of Ruskin in "The Seven Lamps of Architecture." "When we build, let it be such work as our descendants will thank us for."

#### WALL-PAPERS OLD AND NEW.\*

BY NOEL D. SHEFFIELD, M.S.A.

##### *History.*

WALL-PAPERS are now universally accepted by all classes of society as a mural decoration for enriching a plain plaster surface. They are, however, of comparatively recent origin. It is probable that when first introduced they were intended as cheap imitations of tapestry and other textile hangings.

Wall-papers did not come into common use in Europe until the eighteenth century, although it is very probable that they were used at a much earlier date by the Chinese. A few rare examples still exist in England which are attributed to the Elizabethan period. These are imitations of old Florentine and Genoese velvets, and are generally of a flock texture.

Machinery for producing paper in long strips and at a reduced cost was not invented till the end of the eighteenth century. Before this date wall-papers were all hand-printed on small squares, and they were extremely difficult to hang with good effect, as the surface was marred with innumerable joints. Under the circumstances it is not surprising to find that the older methods of treating wall surfaces by tapestry, wood panelling, and stamped leather were not easily superseded.

##### *John Baptist Jackson's Inventions.*

There is a little work written by John Baptist Jackson, and printed at Battersea in 1754, that gives some information on the use of wall-papers at that period. Although Mr. Jackson may not have intended his booklet to be a humorous essay, to modern minds it certainly makes most amusing reading. The small book has this imposing title, "An Essay on the Invention of Engraving and Printing in Chiaro Oscuro as Practised by Albert Dürer, and the application of it to the making of Paper Hangings of Taste, Duration, and Elegance. Illustrated with prints in proper colours."

Jackson passes twenty years in France and Italy perfecting his art and then returns to England, as he modestly remarks, "to enrich the land where he drew his first breath by adding to its commerce and employing its inhabitants, and yet like a citizen of it he would willingly enjoy some little share of those advantages before he leaves this world." Like many an inventive pioneer of the present day, Mr. Jackson found money "rather tight," and therefore made his printed appeal to the public "in the hopes that the merit of the undertaking may induce gentlemen of taste to look into and give vigour to his Invention and Infant Art." He acknowledges that Albert Dürer, Titian, Raphael, and others drew their own works on blocks of wood, but states that the manner in which they were done is entirely lost. He takes to himself, however, full credit for his rediscovery, and says that "an art recovered is little less than an art invented." Jackson then briefly describes the manner of printing engraving on copper in colours and the difficulties of obtaining ten impressions without losing all the elegance of the graving, but by his own method an almost indefinite number of impressions might be taken off without a difference between the first copy and the last. Added to this, he invented ten tints, all of which could be taken off with only four impressions. This

\* Extracts from a paper read before the Society of Architects.

attempt, when he submitted it at Paris, was treated as romantic and visionary, especially when he proposed a method by which blocks of wood might stand the power and pressure of the rolling press, which was apparently another invention of his own. Jackson finally applies his invention to the manufacture of "paper for the hanging of rooms." By this method of printing paper he contrived that the "lights and shades should be broad and bold and give relief to the figures of antique statues; the colours softening into one another with harmony and repose and true imitations of Nature in drawing and design." The printed panels were further to be surrounded with "Festoons and garlands of flowers with great elegance and taste." Landscapes taken from any great master of painting could also be done in this manner, and staircases could even be treated in imitation of stone or stucco. No figure was apparently too large for reproduction, statues being taken off in full length or any size whatever.

William Morris was the first to arouse the public from the apathy into which it had sunk during the first period of the Victorian era and to cultivate an appreciation of well-designed interiors. No one, perhaps, has done more to change a degraded national taste and raise it to a much higher standard. He adapted designs from Indian, Venetian, and old English sources, whilst his own work, although it consisted at first in the repetition of a few floral units, became in due course very rich both in colour and treatment. Morris, it is said, owed much to a seventeenth-century work entitled "Gerarde's Herbal." The illustrations in this book are woodcuts, and the plants are drawn in a very simple and effective manner, resembling very closely the appearance of pressed specimen flowers and leaves.

Many other men have of recent years turned their attention towards wall-paper designing. Among them may be mentioned J. D. Sedding, Walter Crane, Haywood Sumner, Lewis F. Day, and C. F. A. Voysey. Original designs are at the moment not much sought after, the tendency being to resurrect the Jacobean, old Japanese, and old Chinese textile patterns and to adapt them to modern methods of wall-paper manufacture.

##### *"The Satisfying Mystery" of Pattern.*

One great objection often urged against the use of wall-papers is the mechanical effect obtained. It is true paperhangings fall into no folds when hung. They are also a cheap form of decoration easily done, easily applied. The material is commonplace, the manufacture certainly mechanical, but if a design is well thought out, with good "repeats" and with good colourings, this contention will not hold. To overcome the objection to regular joints, papers have been put on the market with curved or irregular joints, so arranged that, when hung, they are lost in the mazes of the design.

The Japanese display their great originality and love of variety in the wall-papers which are used to decorate their walls and screens. Repetition without any variation is abhorrent to them. They will not tolerate the monotony of a dull uniformity created by mechanical reproduction, and their feelings are nowhere more severely tried than in wall-paper design, because mechanical reproduction is here unavoidable. The force of imagination and ingenuity they display in disguising the effect of exact repetition can only be realised by inspection



of the papers, and no description can supply a substitute. William Morris probably had similar sympathies, for his advice is "to mask the construction of our pattern enough to prevent people from counting the repeats of our pattern. If we are successful we shall obtain a look of satisfying mystery which is essential in all patterned goods."

There is nothing like white painted woodwork for setting off wall-papers. Even if white paint is condemned as monotonous, at any rate the inexperienced may feel safe in adopting such a paint. There can be no disastrous collision. One leading tint of the paper may often look very effective for the colour of the paint-work generally. More than one colour should on no account be used. The practice once so common in cheap property, of picking out two, three, or more colours, and reproducing them on the stiles and panels of the doors and on the ceiling cornice and centre flower must be condemned as thoroughly inartistic.

#### Choice of Designs.

Before starting on a scheme of decoration, it is necessary to consider the chief decorative points. Take, for instance, the question of pictures. Walls are often hung with paintings so as to resemble miniature art galleries. Under these conditions a wall should not be covered with a paper of marked design. There should not be any struggle for ascendancy between the pictures and the paper. In fact, it has been found that a perfectly plain paper makes the most suitable setting. It is owing to this fact that the use of self-coloured papers has increased so enormously of late years. Oil paintings in gilt frames look their best on a plain

brown background, whilst engravings and photographs show up well against a light yellow or grey paper. In our art galleries it will be noticed that the walls are often covered with a dark-coloured burlap or arras, fastened on battens. This, undoubtedly, makes the most effective background for pictures, but, in private dwellings such a hanging is apt to harbour dust and on hygienic principles is not to be recommended.

In choosing wall papers to suit particular rooms, notice should be taken of the lines of the patterns as well as the colours, always bearing in mind the elementary fact that a pattern in marked vertical lines tends to increase the apparent height of a room, whereas, a paper with a horizontal effect tends to make the room lower and longer.

## BOOK NOTICES.

### *A Manual on Foundations and Machinery Fixing.*

Fortunate in having found a subject upon which very little has been published in book form, Mr. Francis H. Davies has made good use of his opportunity and has produced an excellent text-book on "Foundations and Machinery Fixing," and has thereby earned the gratitude of all who are called upon to give practical attention to a subject on which information has hitherto had to be sought over an inconveniently wide area, by gleaning the casual and scrappy references in text-books or by hunting through the files of innumerable periodicals for more extended contributions. The available information of this kind seems to have been well digested by the author, who,

nevertheless, relies principally on his own personal practice and investigation. He finds that to some extent practice is standardised, but he is unaware of any published figures of value relating to the proportions of foundations for engines and machines of various types, speeds, and horse-powers, although such proportions differ very materially and are certainly of consequence. It is partly in order to supply the deficiency that the book under notice has been written, and the figures given in the chapters dealing with design are representative or average values, which have been taken in most cases from actual installations, the remainder being based upon the recommendations of engine-builders. Primarily intended for engineers, the manual is nevertheless one which, after examining it, the architect or the builder will unhesitatingly add to his technical library.

"Foundations and Machinery Fixing." By Francis H. Davies, A.M.I.E.E. 152 pages, 6½ ins. by 4¼ ins., price 2s. net. London: Constable & Co., Ltd., 10, Orange Street, Leicester Square, W.C.

### *Spon's Pocket Price Book and Diary, 1913.*

With flexible covers and rounded corners, light weight, and altogether convenient format, Spon's Price Book is a genuine pocket book, and the arrangement of its contents further fulfils the intention; for the information contained, while abundant enough for the purpose in view, is so skilfully condensed as to occupy but little space, and yet is so conspicuously set out as to avoid confusion and facilitate reference.

\*Spon's Architects' and Builders' Pocket Price Book and Diary, 1913. Edited by Clyde Young, F.R.I.B.A., and Stanford M. Brooks, Licentiate R.I.B.A. Fortieth edition. London: E. & F. N. Spon, Ltd., 57, Haymarket. Pages xxxi. + 308 + 112, price 2s. 6d. net.



HOUSE AT REIGATE: GROUND-FLOOR PLAN. P. MORLEY HORDER, F.R.I.B.A., ARCHITECT.

(See pages 348 and 353.)



### *A Guide to Local Legislation.*

What are called private Acts of Parliament, but usually are presented by corporations or other quasi-public authorities, must be carefully prepared in accordance with precedent and, where the details are numerous, the labour of casting them in the regulation mould must be very heavy. Fortunately, guidance in such matters is available, and is carefully brought up to date, so that, given skilful drafting after patient collation with Acts that have passed the ordeal, a corporation Bill need be in but little danger of expensive delay, to say nothing of absolute rejection, in consequence of its provisions being out of order. In "Local Legislation" Mr. Frank Noel Keen put forward an invaluable compendium of requirements, and to this work he has now added a supplement for 1912, offering a collection of provisions contained in private Acts of Parliament obtained by provincial corporations and urban district councils in England and Wales after consideration by the Local Legislation Committee of the House of Commons. These Acts refer to Liverpool, Bedwellty, Keighley, Tavitock, Swansea, and Shipley, and the Sheffield Corporation Bill of 1912 is also laid under contribution. The various sections of the supplement group the data under the following heads: Streets, buildings, sewers, drains, wells, and watercourses; Prevention of disease, protection of food, and other sanitary provisions; Common lodging-houses; Public buildings, baths, recreation grounds, and seashore; markets, fairs, and slaughterhouses; Street traffic and other police provisions; Water supply; Gas supply, Electricity supply; Tramways and railless traction; Insurance and superannuation; Finance and rating; Procedure and miscellaneous provisions; and Definitions. From this mere list of headings it becomes obvious how diverse and complex are the data of local legislation, and how helpful such a book as this can be.

"Local Legislation: Supplement for 1912." Compiled and arranged by Frank Noel Keen, LL.B.: Barrister-at-Law, of the Parliamentary Bar. London, Walter Southwood & Co., Ltd., 30, Craven Street, W.C. Pages xii. + 92, 5½ ins. by 8½ ins.

### *"One and All Gardening."*

It is the order of the day, one and all gardening; and architects are doing much to direct this universal passion towards comely issues. They are the better qualified for the task when they are themselves enthusiastic gardeners, practising what they preach. They must at any rate be at some pains to acquaint themselves with practical details, and hence the editor of "Specification" has wisely included among the special articles in the fifteenth issue an important contribution on "Landscape Gardening," by Mr. Edward White, in addition to the particulars of garden buildings, the specification clauses, and other matters proper to the section entitled "Horticultural and Landscape Architect." Nor is the architect exclusively concerned with the gardens of the great. "Garden city" and "garden suburb" are terms that imply his interest in the lay-out of the villa or cottage plot, over which, while he may have no very direct control, he may yet exercise some considerable initial influence. It is primarily for the cottage and villa gardener and the "smallholder" that "One and All Gardening" is published; but it is a joy to every garden lover, not solely, nor even principally, for the excellent practical information it contains, but more especially for the fragrance of the garden which appropriately it exhales. The editor, Mr. Edward Owen

Greening, F.R.H.S., well knows how to invest the pursuit with its own peculiar charm. No man has done more to popularise gardening, and among the many cheap publications which are the chief means of propagating this gospel of health, wealth, and beauty, there is none more delightful or more successful than the two-penny "One and All Gardening." It is published by the Agricultural and Horticultural Association, Ltd., 92, Long Acre, W.C.

## NEWS ITEMS.

### *Close Tendering.*

At a recent meeting of the Wilts County Council, the tender of Messrs. Hayward and Wooster, of Bath, at £10,979, was accepted, and it appeared that two other tenders were respectively £6 and £8 more.

### *Changes of Address.*

Mr. Henry T. Hare has removed his offices from 13, Hart Street, Bloomsbury, to 7, Gray's Inn Square, W.C.

Mr. Francis Hooper, F.R.I.B.A., has removed to Norfolk House, Norfolk Street, Strand, London, W.C. His telephone numbers are 1151 Central and 1115 Bromley.

### *The Paris Housing Schemes.*

The new-born enthusiasm of the Paris Municipal Council for the provision of cheap dwellings seems to be in some danger of immediate extinction. The Council are making no visible effort to materialise the scheme, and excuse their inaction on the ground of alleged financial obstacles, which, however, cannot be insurmountable, seeing that the city is empowered to raise a loan of two hundred million francs for the work.

### *The New Middlesex Guildhall.*

The removal of part of the scaffolding from the Middlesex Guildhall, near Westminster Abbey, has disclosed one of the most recent additions to modern London street architecture. The building, designed by Messrs. Gibson, Skipwith, and Gordon, makes adroit use of late Gothic features. The regular planning, the large plain wall surfaces, the wide windows, are as un-Gothic as could be; but the cresting, the carved heraldic devices, and the traceries on the crowning course, are of distinctly Gothic character. The massive tower, with its very deep recesses, in the centre of the main front is one of the most successful features of the design.

### *Calcutta's New City Architect.*

Mr. J. H. de C. Ballardie, A.R.I.B.A., has been appointed city architect and surveyor to the Corporation of Calcutta, at a salary of Rs. 1,350 per mensem, inclusive of travelling and other allowances. Mr. Ballardie is a Scotsman, thirty-four years of age, born at Maturata, Ceylon. From 1896-98 he took the combined civil engineering and architectural course at the University of Leeds. He served for one year in the office of Mr. W. S. Braithwaits, architect to the late Leeds School Board, and then travelled in France, Germany, and Egypt. For five years he was in the office of the late Mr. Alfred Waterhouse, R.A., LL.D., during which time he passed through the Royal Academy Architectural Schools, and was Silver Medallist in 1903. In 1906 he passed the final examination, and was elected an Associate of the Royal Institute of British Architects. From 1903-1910 he was in the office of Sir Aston Webb, C.B., R.A., and Mr. E. Ingress Bell, F.R.I.B.A. (late architect to the War

Office), consulting architects to the Crown Agents for the Colonies. In November, 1910, Mr. Ballardie was selected out of over 300 candidates for the post of building engineer to the Rangoon Municipality.

### *School for Beckenham and Penge.*

The Beckenham Urban District Council have obtained a promise from a local landowner (Mr. Cator) of a site of 3½ acres for the purposes of the erection of a County Girls' School, to be erected within the next three years, and the Kent Education Committee have agreed to the proposed terms on which the school is to be erected.

### *New Peal for Lincoln Cathedral.*

A new peal of eight bells is being installed at Lincoln Cathedral. They range from 5 cwt. to 23 cwt., and the old wooden framework is being replaced by cast-iron frames resting upon steel joists and stiffened by steel bracing, the whole being carried by three 20 in. by 6 in. H sections. Provision is being made for twelve bells, so that the four smaller ones to complete the peal can be added later. The two largest bells of the old peal, dating back to 1593, are being refitted and rehung on a separate framework as objects of archaeological interest and for use as service bells. The work is being carried out by Messrs. John Taylor and Co. A low pressure hot-water heating system is being put in by Messrs. W. Richardson and Co., under the supervision of Sir Charles Nicholson. Heat is supplied by a cast-iron sectional boiler fitted with an automatic draught control and temperature regulator in conjunction with an induced draught fan.

## LIVERPOOL'S NEW BY-LAW AS TO HOLLOW WALLS.

Liverpool City Council has drafted a by-law with regard to hollow walls. It provides that every person who, in erecting a new building, shall construct any wall of such building as a hollow wall, shall so construct such wall as to comply with the following rules:—

(i.) The inner and outer parts of the wall shall be separated by a cavity which shall throughout be of a width not exceeding three inches, and shall be properly drained and ventilated.

(ii.) The inner and outer parts of the wall shall be securely tied together with suitable bonding ties of adequate strength, formed of galvanised iron, or iron tarred and sanded, or of glazed stoneware. Such ties shall be placed at distances apart not exceeding three feet horizontally and eighteen inches vertically.

(iii.) The thickness of each part of the wall shall throughout be not less than 4½ inches.

(iv.) The aggregate thickness of the two parts, excluding the width of the cavity, shall throughout be not less than the minimum thickness prescribed by statute in that behalf for an external wall of the same height and length, and belonging to the same class of building as that to which the hollow wall belongs.

(v.) All woodwork which may be intended to form the head of a door-frame or window-frame, a lintel, or other similar structure, and may be inserted in the wall so as to project into or extend across the intervening cavity, shall be covered throughout on the upper side thereof with a layer of sheet-lead or other suitable material impervious to moisture in such a manner as effectually to protect such woodwork from any moisture that may enter the cavity.



## COMPETITIONS.

### *Police Station, Swansea.*

An open competition for plans for the erection of a police station at Swansea at a cost of £23,000 has been won by Mr. Ernest E. Morgan, architect, of Swansea.

### *The Edinburgh Government Buildings.*

Apparently the construction of the new Government buildings in Edinburgh is not being hurried. As has been previously stated, the plans of the new structure are to be thrown open to competition, and when the conditions of the contest are settled, which may not be for some time yet, architects will be invited by public announcement to submit designs. One certain indication that the Government propose to proceed slowly in the matter is the fact that very little money is asked in this year's Estimates for the scheme.

### *Bridport Hospital.*

Closing date, May 1st, 1913. No remuneration will be given, but author of selected design will be employed to carry out the work. Cost of the building to be estimated by competitors. Accommodation required: Male ward, 6 beds and private room for one bed. Female ward same accommodation as male ward. Bath room, w.c., and sink room for each ward. Operating room. Sterilising room. Mortuary. Board room. Large out-patients' consulting room. Out-patients' waiting room. Dispensary. Matron's sitting room and bedroom. Nurses' sitting-room and two bedrooms. Servants' bedroom for two beds, etc. Bath-room for staff and w.c. Kitchen and usual kitchen offices. Usual store rooms. A verandah on south front would be a desirable feature. Competitors to indicate suggested arrangements for heating and ventilation. Site at present consists of undeveloped land.

### *New Y.M.C.A. Building at Chard.*

Closing date, May 1st, 1913. £10 and £5 for drawings placed first and second. Successful competitor to carry out the work. The building to cost not more than £900. Accommodation required: Lecture hall, 800 sq. ft.; reading room, 300 sq. ft.; smoking room, 220 sq. ft.; parlour, 160 sq. ft.; games room, 300 sq. ft.; bath room and offices (ground floor). Care-taker's apartments—two living rooms, two bedrooms and offices. Store rooms for coal, etc.

### *University College, Exeter.*

Hostel for sixty students, with gymnasium and house for the Professor of Education.

Closing date, June 7th, 1913. Questions must reach the Town Clerk not later than April 28th, 1913. Assessor, Mr. Edwin Cooper, F.R.I.B.A. Author of design placed first to be appointed architect, but if work not proceeded with within twelve months of date of award he will be paid £50, to form part of his commission. If the scheme be abandoned, the author of prize design will be paid a further sum of £50 in full discharge, the drawings becoming the property of the Corporation. The authors of designs placed second and third will receive £50 and £30 respectively. Style of architecture and materials left to discretion of competitors. If it be found when tenders are received that cost will exceed architect's estimate by more than 10 per cent., the Corporation claims right to abandon the design and adopt that placed second. Author of abandoned design will then receive £50 in

full payment. Requirements of Board of Education and the Local Authorities must be complied with. Total cost not to exceed £12,000, including any making up of grounds. Accommodation:—**HOSTEL:** *Ground Floor*—Entrance hall, small waiting and reception room, housekeeper's room, store and sewing room, luggage store and lift, manservants' living room, bedroom, w.c., etc., recreation room, about 750 ft. super., study, about 600 ft. super., cloak room for students, lavatories, boot room, games store, cycles, coat store, etc., dining-room for whole of students, service room and pot store, large kitchen, scullery, servants' hall, larders and vegetable stores, w.c. for servants, etc. *First Floor:* Students' study bedrooms for about forty. Each approximately 800 ft. cube; luggage lift, service stairs, Prefects' room, assistant-masters' sitting-room, bedrooms, baths, w.c., and wardrobe, etc., visitors' bedrooms, bath rooms, and lavatories, shower baths, housemaids' closets, and w.c.'s. *Second Floor:* Six servants' bedrooms, entirely disconnected, with baths, housemaids' closets and w.c., housekeeper's bedroom, twenty students' bed-sitting rooms, as upon first floor, assistant masters' as on first floor, sick rooms, day room or sitting room, sick room, connected with baths, housemaids' closets, and w.c., but all disconnected from remainder of students. Construction throughout to be fireproof. **PROFESSOR'S HOUSE:** To be connected with hostel by covered way, or as may be best suggested by competitors. Entrance hall, with usual lavatory and cloaks, small study, dining and drawing rooms, service room, kitchen, scullery, etc., servants' w.c., coal store, four bedrooms, baths, w.c., and two servants' bedrooms. **GYMNASIUM:** Suggested that gymnasium be connected with hostel by covered way. Dressing-room fitted with lockers and small gallery on exterior walls, two or three five courts.

## LAND VALUATION AND THE LUMSDEN CASE.

### *Discussion in Parliament.*

In the House of Commons on March 25th, Mr. Perkins complained of the action of the Inland Revenue Department in regard to the valuation of land, pointing out that when the People's Budget was passed the House was assured that under no circumstances would increment duty be levied on anything but increment in the value of land. He protested against violation of this understanding, and against the rushing tactics of the Department of Inland Revenue in regard to the collection of the land value duties. They had acted in the most grasping manner, without consideration for public morality or fairness.

Mr. Fitzroy complained of the methods adopted by the Government in the valuation of agricultural land. The Government were spending thousands of pounds of the taxpayers' money which was absolutely barren of good results, while the owners of land were subjected to great loss and litigation in connection with this matter.

Mr. J. M. Henderson condemned the whole system of valuing urban land, which was based upon the fetish of site value, and was costing the country many millions of unnecessary expenditure. He asserted that the Inland Revenue authorities were deliberately undervaluing land so that it should be certain to attract duty.

Mr. Rendall believed that land valuation was being conducted very efficiently. He had not noticed any desire on the part of Government valuers to make unduly low valuations. It was only nervous and stupid people who were frightened by the Land Union lecturers.

Sir A. Griffith Boscawen said that one of the worst effects was that they were making the housing difficulty in town and country infinitely greater than it was before.

Mr. McCurdy said that the Opposition had for three years been telling investors of the country, builders and others, that the land taxes were cruel and oppressive and were hampering small property owners. In that time they had not produced half a dozen instances and had not made a single proposal or amendment suggesting an alleviation of the lot of the speculative builder or to relieve alleged injustices.

Mr. Pretyman said that so far as the taxing of profits was concerned there had been no defence attempted by any of the Government supporters. The public had not been frightened by the Land Union, but by the actual facts which had come out through the administration of the Act. As the Act was being administered any small houseowner was liable to be affected just as the builder was. He quoted the case of a working-man who had invested all his savings in the purchase of a house and land for £290, and upon its compulsory sale through private circumstances had made a loss, and yet was charged £4 15s. 1d. increment value duty. There were many cases where people had invested their savings in bricks and mortar and did not understand juggling with figures. Consequently they found themselves faced with the increment duty, and were called upon to pay heavy legal expenses or to pay the duty, which he thought was never intended to be imposed by that House. He complained that provisional notices were carelessly made out in some instances, that the duty of serving them had been taken out of the hands of the district valuers, and that they were sent direct from headquarters in London without any knowledge of local particulars. Practically no valuation had yet been completed which would not be affected by some of the decisions of the court, and would require material revision after the law had been decided. The only defence of the Act had been the impenetrable shroud of gibberish with which it was surrounded. The public eye was penetrating that shroud, and when it did get through the public would make short work of the whole proceeding. They had direct evidence that the site value was not the value of the site, but was calculated on a statutory conception, and they were taxing people on that basis. The tax was a mere blind. He also would point out the grievance which was felt by the refusal of the department to amend obvious errors in the case of increment value duties on minerals.

An appalling delay had also occurred in the settlement of estate duty claims. The Act was being administered in a go-as-you-can style. The department was out to get money honestly if it could, but in any case to get it. The administration of the Act was causing the gravest dissatisfaction all over the country. The opposition to it was increasing daily, and it was not created by the work of the Land Union. The Act was wholly unworkable on the present basis.

Mr. Masterman said that the whole question was whether the officers of the Inland



Revenue were carrying out their duties as laid down by the Act, or were indulging in unusual oppression in taxation. If Mr. Pretyman had admitted that in certain cases the officers were technically in the right, it was not his function to impeach them, but rather to make proper legislative proposals to alleviate any hardship which might have occurred. He would repudiate the statement made that instructions had been issued either by the Chancellor of the Exchequer himself or by the central headquarters of Inland Revenue to those administering the Act in the country. To suggest that the Government had given instructions to the commissioners to get money dishonestly if they could was a grave charge. Where instructions were given to get revenue, they were legally bound to get it. Where there was any doubt about any case they would see that the law did not operate hardly. Hon. gentlemen opposite had stated that there were gross inaccuracies and differences in the methods of valuation, and last year the Government had offered to appoint an expert committee to inquire into those methods. That offer had been repeatedly made, and though it remained as clearly as in July last it had not been accepted. If the Opposition had thought that there was a difference between the valuations in Lincolnshire and those in Cornwall, they would have accepted the committee at once. Neither did he believe that there was a feeling against the Act, as had been suggested. They certainly had received complaints and suggestions for alterations. The total number of hereditaments valued up to February 13 this year was 3,770,000, and the number which were the subject of appeal was 4,466. Out of twenty cases which went to the referee, twelve were decided in favour of the Government's valuers, five were about evenly settled, and three only were decided in favour of the subject. In view of these facts it was impossible to say that this great valuation was being conducted in such a manner as to cause widespread indignation. The statement also that the work of the Valuation Department would be ruined and hundreds of thousands of farms would have to be revalued in certain contingencies was entirely remote from the facts, as were other statements which the hon. and gallant gentleman had made. There had been scandalous misrepresentation at times. The hon. and gallant gentleman was engaged in trying to fan the flame of a general agitation against the tax and against the valuation. He was doing so by continually nagging at the administration. The valuation had been carried out in the letter and spirit and in conformity with the desire of Parliament.

#### *Criticism of the Land Taxes.*

At a meeting of the British Constitution Association, held at St. Ermin's Hotel last week, addresses were given by Mr. Pretyman, M.P., and Mr. Harold Cox on the land clauses of the Finance Act. Mr. Harold Cox described as monstrous the system of valuation which the land taxes had set up. He said he had calculated that the two taxes which were the cause of it only yielded up to the last financial return £37,500 in three years and cost over £600,000 to collect. If the judgment in the Lumsden case was to hold, every man's property, whatever it might be, was at the mercy of Government valuers. No longer was a tax necessarily to be imposed by Act of Parliament; it could be levied by the arbitrary will of any Government surveyor. That was an entirely new Constitutional principle, and he was inclined

to think it might be challenged in the Law Courts.

#### *Mr. Lloyd George on the Lumsden Case.*

Mr. J. W. Tranter, of Bath, has received the following reply to a letter to Mr. Lloyd George with reference to the Lumsden case:

"I am desired by the Chancellor of the Exchequer to say that there is no foundation for the statement that the effect of the procedure of the Inland Revenue Department as endorsed by the judgment of the High Court in the case of the Commissioners of Inland Revenue v. Lumsden is to charge a duty of 20 per cent. on all builders' profits. On the contrary, there have been, since the Act came into force, very many transactions by builders who have presumably realised a profit, but in very few cases has any charge of increment duty been raised. The practice of the Department in arriving at the site value on the occasion of a sale of a composite property by a builder is to deduct the whole of the value, attributable to the operations of the builder. This will, in normal cases, include the whole of the profit of the builder who, presumably, builds houses, not out of charity, but because he expects to create a value which, when realised, will afford him a profit over and above the cost of production.

I am to point out that the circumstances of Mr. Lumsden's case were exceptional. He realised a price considerably in excess of the combined market value of the land and building. That market value included the builder's profit which he had created by his experience and skill, and in estimating the increment value a full and even generous allowance was made for the value attributable to the building, including the builder's profit, which accordingly was entirely eliminated from the charge of duty. The increment of £125, on which duty was charged, represented the excess of the sum obtained for the composite property over and above its market value, including builder's profits—an excess of price over value which the owner could not reasonably have expected to obtain, and which was a fortuitous windfall coming to Mr. Lumsden, not through his skill as a builder, but as a chance gain incident to the monopoly of land ownership. As such it was as fit a subject for taxation in his hands as it would be in the hands of any other owner, and the charge affords no ground for the belief that a builder's normal profits are endangered."

#### *A "Koh-i-noor" Perpetual Calendar.*

We have received from Messrs. L. and C. Hardtmuth, Ltd., of Koh-i-noor House, Kingsway, London, a very useful perpetual calendar, in which the month and day are changed by turning the handles of the rollers on which they revolve. Architects and builders will be glad to have this calendar for office use, and they will not object that it conveys a reminder of something besides the date—namely, that Messrs. Hardtmuth supply the famous "Waterman's Ideal" fountain pen and the equally renowned "Koh-i-noor" pencils. The pencils, which are prime favourites with architectural draughtsmen as well as with the general public, are made in seventeen degrees, to meet every requirement, ordinary or special. It is claimed that, in addition to the supreme quality of these pencils, they are of such extraordinary durability that one of them will outlast six ordinary pencils.

## Publisher's Notices.

**Offices:** ADVERTISEMENT, EDITORIAL, AND COUNTING HOUSE—Caxton House, Westminster. PUBLISHING—6, Great New Street, Fetter Lane, E.C.

**Telegraphic Address:** "Buildable, London."

**Telephone:** ADVERTISEMENT, EDITORIAL, AND COUNTING HOUSE—817 Gerrard. PUBLISHING—2200 Holborn (six lines).

**Date of Publication.**—THE ARCHITECTS' AND BUILDERS' JOURNAL is published every Wednesday, price 2d.

**The Subscription Rates per annum are as follows:**—

At all newsagents and bookstalls..	s. d.
By post in the United Kingdom ...	8 8
By post to Canada .....	10 10
By post elsewhere abroad .....	13 0
By post elsewhere abroad .....	19 6

**Subscribers** can have their volumes bound complete with Index, in cloth cases, at a cost of 3s. 6d. each, Carriage extra. A cheaper binding can be supplied at 2s. 6d., Carriage extra.

**Advertisements** for the current week, alterations to serial advertisements, etc., must reach the office not later than first post on Saturday.

**Rates** for serial Advertisements, Special position, etc., sent upon application.

**THE ARCHITECTURAL REVIEW.** Monthly. Price 1s.

**THE PRACTICAL EXEMPLAR OF ARCHITECTURE.** Selected by MERVYN E. MACARTNEY, B.A., F.S.A., F.R.I.B.A. The scheme of the Exemplar is to give an absolute and correct reproduction of fine details from the old and new Masterpieces of Architectural Design and Construction by means of Photographs and Measured Drawings. Four portfolios, comprising over 450 Plates. Price 15s. each. Post free inland.

**SPECIFICATION: The Indispensable Standard Reference Book** provides all the information that Architects, Surveyors, and Engineers may require when preparing drawings, writing specifications, or compiling bills of quantities, with sample specification clauses. Invaluable to owners of land, building sites, country estates, and all connected with house property. No. 15, 1913. Price 3s. 6d. nett, postage 6d. extra inland.

**THE LIVERPOOL ARCHITECTURAL SKETCH BOOK.** The Liverpool Architectural Sketch Book affords striking evidence of the forward movement in Architectural Education. The drawings are skilfully executed and have been fully reproduced on heavy art paper. Vol. I, 2s. 6d., Vol. II, 5s. nett, Vol. III, 2s. 6d. nett. Post free inland.

**RECENT ENGLISH DOMESTIC ARCHITECTURE.** Edited by MERVYN E. MACARTNEY, B.A., F.S.A., F.R.I.B.A. These Special Issues give a magnificent collection of the work of the best architects of the day, and are of the greatest value, not only to architects and builders, but also to those having estates to develop and others who are interested in house-building. 3 Vols. Price 7s. 6d. each nett. Post free inland.

**PRACTICAL NOTES FOR ARCHITECTURAL DRAUGHTSMEN.** By A. W. S. CROSS, M.A., F.R.I.B.A., and A. E. MUNBY, M.A., A.R.I.B.A. Gives in most convenient form for use on the drawing-board examples with concise rules, explanations, and dimensions for preparing Designs, Perspectives, and working Drawings for Classical Architecture with rapidity and precision. Price 15s. nett, post free inland, including Portfolio.

**SHORT CHRONOLOGICAL HISTORY OF BRITISH ARCHITECTURE.** This publication presents the whole field of British Architecture as a coup d'œil, and enables the several periods to be compared one with another, and also to be examined individually. The letterpress sets forth in brief order the entire chronological development, following the succeeding phases of architectural art, and giving those essential facts which are necessary to a proper estimate of the whole. Price 10s. nett, post free inland.

**STANDARD DETAILS.** 25 large Plates (24 by 17½ in.), forming with Portfolio Vol. I. of "Standard Examples of Architectural Details." The object of this publication is to give examples of architectural details which are representative of their several periods. The drawings have been executed with great care, and are reproduced to such a size that every detail of the work can be closely studied. Included on the plates are photographic reproductions. In this way each example is completely represented. In the present portfolio the plates include typical examples of interior and exterior details—chiefly of the period of the English Renaissance. Price 15s. nett, post free inland.

**ENGLISH ECCLESIASTICAL ARCHITECTURE** Never before has there been brought together a representative series of photographs of the recent work of English church architects. Examples of the best modern church work are included, and the volume is fully representative of what is being done by the chief architects of the present day, including buildings of Renaissance character as well as Gothic. Price 10s. 6d. nett, post free inland.

**Orders should be sent to The Manager, TECHNICAL JOURNALS, Ltd., Caxton House, Westminster, S.W.**



# THE ARCHITECTS' & BUILDERS' JOURNAL.

Wednesday, April 9, 1913.

Volume XXXVII. No. 952.

No. 28.



*(From Piranesi.)*



*Photo: Bedford Lemere & Co.*

THE NEW THEATRE, MANCHESTER: DETAIL OF FAÇADE. H. FARQUHARSON, RICHARDSON AND GILL, ASSOCIATED ARCHITECTS.

*(See page 371.)*



# THE ARCHITECTS' & BUILDERS' JOURNAL.

APRIL 9, 1913.

CAXTON HOUSE, WESTMINSTER.

VOLUME 37. No. 952.

## Official Architecture.

AMONG the many professional questions with which the architectural world to-day is vexed, there is none of more present interest than that of official architecture, which is accentuated by the general tendency towards increase in the practice. There are, however, different arrangements under which a man may become attached to a public body as its official architect; that which is most usual being a salaried post unaffected by the amount of work which is done. It is this form which is very generally objected to by the independent members of the profession, who dispute the chief argument which is used in its favour, namely, that of economy. At a cursory glance it would appear that with a fixed salary for the chief official and a normally increasing staff in proportion to the amount of work to be done, all the extra profit which the private architect makes would be saved. Thus, if the private architect is paid £1,000 commission on buildings to cost £20,000, it would appear to be quite possible to procure an official architect and his staff for this same sum, and a saving would be effected upon any additional work which they were able to get through.

But in point of fact, though the salary of the chief remains the same, the size of the official staff increases out of all proportion to that of the private architect. There is not the same motive for the chief to keep a lynx-eye on the members of his staff, or on the amount of work they do, and town-hall offices are notorious as providing soft jobs for draughtsmen who wish to put in a comfortable day's work without risk of being unduly hurried.

Further, there is another reason for the large size of the official staff: There is a great deal more time spent on the preliminary stages of sketches in connection with all buildings of importance. When a public competition is held, this preliminary work, this necessary tentative fumbling, is done by the unsuccessful competitors, and the modest sum given for a second premium covers all this rejected work, for the first premium merges in the commission. Although there is a great deal that is unsatisfactory in the competitive method, still as a whole the profession is willing to do this tentative work for next to nothing, provided that the man who has successfully hit on the solution in his scheme gets the real work. But in an official office every attempt, every absurdity which an ignorant committee may insist upon seeing on paper, has to be paid for out of the public purse. It might be said from the point of view of the architectural profession that these large public offices are providing occupation for youthful architectural assistants who would otherwise be without occupation. But, though a sudden disbandment would cause some immediate hardship, with the exception of a few lazy ones who would then find themselves justly without a job, it would be an ultimate gain to the abler men, who would have a chance of winning the work as principals which they now design and carry out at an assistant's stipend.

Of immensely greater importance however than economy, is efficiency. In general it must be confessed that a permanent official at a fixed salary has not the same incentive to excellence as an architect in private practice who is winning all his more important work in open competition. In the skill of technical planning even more than in stylish utterance is it difficult for the official architect to keep himself in the front rank. For example, unless he happens to be an enthusiast on educational matters, it is hardly likely that he will follow the evolution of school design as keenly as the architect who enters for a competition: nor will the public authority be so likely to obtain for their schools the latest pedagogic improvements. With regard to those Government offices which design buildings all over the country, another grave disability enters in. Conceived and worked out at a central office, they are out of touch with local requirements and conditions. This of course can cut both ways. Occasionally a brilliant official may be appointed who will dot the country over with works of genius. A few years ago the Post Office of Manchester was placed in its midst, certainly out of touch with local characteristics, but far ahead of the average of local work. But these are rare exceptions; more often we see, for example, some noble square on which the town has expended large sums of money and some thought, defaced by an obtrusive structure designed in a far-distant Government Department where a quite mistaken idea of the local surroundings is held. Or a feeble stylistic means of expression, which had been applied without grave offence to branch libraries and tram stations, is thought quite adequate for a setting to such a mighty monument as St. George's Hall, Liverpool: in comparison with which achievement the red-brick London County Council Fire Station in the Greek atmosphere of the Euston Road—an ungainly hybrid of suburban flats and garden suburb architecture—almost pales into respectability.

There are, however, forms of official architecture to which one can hardly imagine exception could be taken. The French method, for example, of watching the career of the most successful students of the Ecole des Beaux-Arts, and attaching their services to the Government for important works. This method has been tried on a small scale by some English municipalities who, wearying of interminable competitions for schools, have chosen some local practitioner who has been successful, and appointed him their official school architect, paying him the usual commission. His alertness can always be stimulated and his modernity tested by an occasional competition.

In other directions, also, we should like to see a multiplication of official architects whose activities should be critical rather than creative. For example, the L.G.B. inspectors who hold inquiries into the building of new Town Halls and other municipal buildings might with advantage be occasionally architects instead of as at present invariably engineers: the administration of the town-planning Act suggests



occasions for architectural critical officials: the passing of building plans by local authorities, with at times discretionary powers over elevations is by no means always in the hands of a trained architect. But if these posts were multiplied it is of the utmost importance that they should only be offered to those who had actually produced works of high merit; they should not be selected by means of theoretical examination or nepotism.

It is therefore in the direction of criticism rather than creation that we wish to see the development, if any, of Official Architecture.

X.

#### The Building Trades Exhibition.

FOR many years past the Building Trades Exhibition has been a prodigious success, and we are glad to know that the forthcoming show at Olympia—to be opened on Saturday next—is likely to be as great an attraction as any of its predecessors. Many trade exhibitions are only so in name, for they include a number of exhibits that are quite extraneous; but no such defect is to be observed at the Building Trades Exhibition, which, while complete and comprehensive within its legitimate scope, rigidly excludes all exhibits that have no intimate connection with building. Very rightly, therefore, the exhibition has the support and enjoys the confidence of architects, builders, and surveyors alike, who will be officially represented at the opening ceremony. As already announced, we shall publish two special issues dealing with the exhibition, on April 16 and April 23; in which issues will be given an illustrated account of all the novelties connected with building which have recently made their appearance, as well as particulars of exhibits of forms of construction, appliances, etc., which have now taken their places as standard features in the building industry. These issues, therefore, will be of considerable interest and value to all connected with building, and, as in former years, will no doubt be much sought after.

#### The Passing of Sion House.

TO the many thousands of people who visit Kew Gardens a familiar sight is the barrack-like block of Sion House on the opposite bank of the Thames, with the Percy lion—designed by Robert Adam and taken from Northumberland House—standing stark and stiff over the battlements. It is news of general interest, therefore, that Sion House is very soon to come into the market. The rumour has been abroad some little time, and some question has arisen over the possibility of the estate being given up to building speculation; in face of which rumour Sir David Train, director of the Royal Botanic Society, is stated to have hinted that a disturbance of the local amenities might lead to the transference of Kew Gardens to another site. This latter suggestion, however, is without occasion, for, as a fact, the area is to be brought within the scope of the Housing and Town-Planning Act, and it is extremely unlikely that anything will be done to affect Kew Gardens.

Sion House has had a strange and troublous existence. It was originally a monastery, which Henry the Eighth took special pains in suppressing. The building having thus become the property of the Crown, Edward VI. granted it to the Protector Somerset, from whom it passed to the Duke of Northumberland. On the latter's attainder, however, it was again forfeited to the Crown, and Queen Mary retained the house in her own possession till 1557, when she restored the monastery. But Elizabeth soon put an end to this, and held Sion House until, in 1604, she granted it to Henry Percy, ninth Earl of Northumberland. He greatly improved the place, and his son, Algernon Percy, had the buildings thoroughly repaired

under the direction of Inigo Jones. By the marriage of Lady Elizabeth Percy with Charles Seymour, Duke of Somerset, the house once more returned, in 1682, to the family who had built it. The tale of Sir Hugh Smithson, who married a granddaughter of Charles Seymour, assumed the name and arms of Percy, and was in fulness of time created Duke of Northumberland, brings the history of Sion House down to 1766, from which time its record is clear and uneventful.

#### The Water Diviners.

WE shall be interested to see the official report on last week's "field day" at Guildford, when a cosmopolitan assembly of "water diviners" set out to prove their powers under the observation of an expert committee; because the accounts which have appeared in the newspapers are so diverse in character—according to the attitude of faith or incredulity which the writer assumes—that it is quite impossible to determine what real worth is to be allowed in "water divining." We must confess that we have hitherto regarded it as rather a hazy science, with all the spurious elements that one is accustomed to associate with bone-setting or necromancy, and our doubts are not diminished by reading how some of the "diviners" at Guildford walked over an underground reservoir without so much as a tremor in their twigs; in explanation of which we are asked to believe that only "natural" water gives the mystic thrill. At the same time, so responsible a journal as the "Times" states that in those cases where underground water was located in any volume the vibration of the rods was very great, "and in several instances the hazel twigs broke off." Yet we are still rather incredulous, and only when we are assured by the committee of investigators (which includes Professor William Whitaker—chairman—Professor Henry Adams, Dr. Lapworth, Dr. S. Rideal, Mr. C. Chambers Smith, and Dr. Burnett Ham—chief health officer of Victoria, Australia) shall we regard "water divining" with any degree of seriousness.

#### A Wonderful Collection.

OF supreme interest and value is the collection of Egyptian relics which Professor Flinders Petrie has brought together at University College since his occupancy of the Edwards Chair more than twenty years ago. This collection—for what reason is not publicly disclosed—is now being offered for sale, and the College has been given the option of buying it for £5,985, which is practically the sum incurred by Professor Petrie on its acquisition. An appeal is being made for funds, and we earnestly hope that the necessary amount will be raised, so that University College may retain this wonderful collection. The pottery is an especially valuable portion of it; it is, indeed, the largest of its kind in existence, and is stated to be the only dated collection. Another most important section includes tools and other objects illustrative of the technical arts and processes of ancient Egypt. Professor Petrie has secured a specimen of every variety of tool which he has seen. The objects illustrate glass-making, weaving, stone-working, metal-working, casting, building, and all other arts which were practised in Egypt. Among others may be mentioned an architect's drawing for a shrine, giving the elevation of the front and side. Of particular interest, too, is the collection of weights. But there are a hundred other objects in the collection—such as scarabs, statuettes, faience work, etc.—which are of the greatest educational value, and University College, as the pioneer in the teaching of Egyptology in this country, will be rich in possessing the results of such splendid work on the part of Professor Petrie.



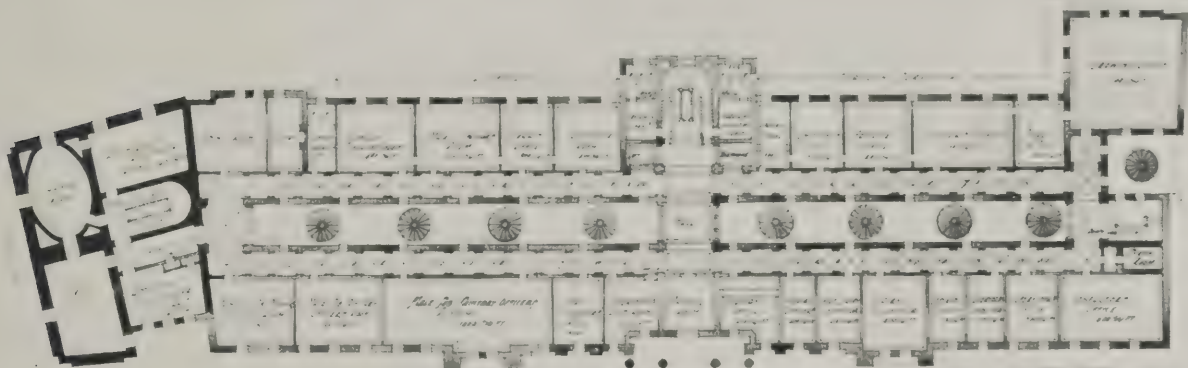
## DUBLIN MUNICIPAL BUILDINGS COMPETITION.

THE result of this competition has been announced as follows: 1st and commission, Messrs. McDonnell and Reid, Dublin; 2nd and premium of £150, Messrs. Batchelor and Hicks, Dublin; 3rd and premium of £100, Messrs. O'Callaghan and Webb, Dublin. We reproduce the first-premiated design in this issue.

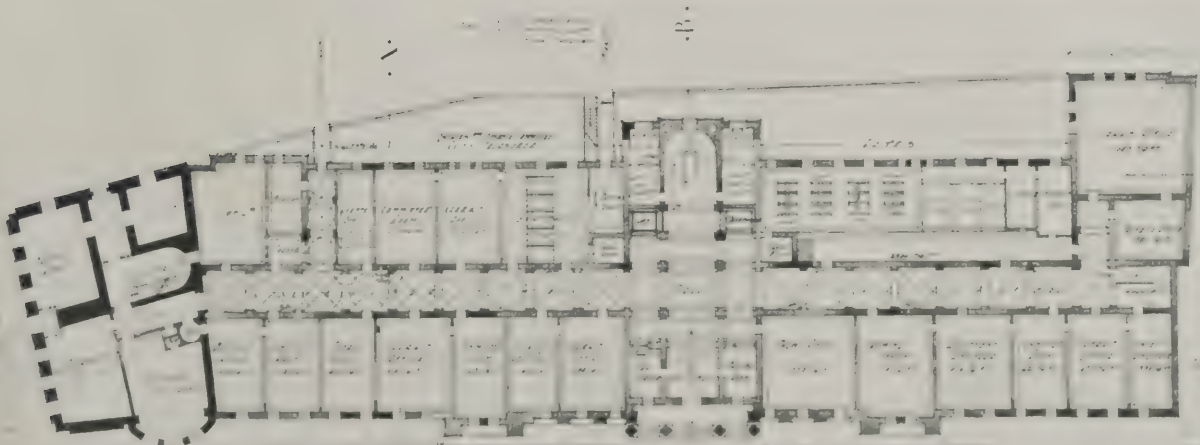
The new municipal offices are to be erected in Lord Edward Street, near the building (La Touche's old bank) in which the Town Clerk and his staff of officials at present carry on their work. The design accepted for the new building will, it is thought, involve an outlay considerably in excess of fifty thousand pounds. It is intended to be carried out in Irish granite, with Portland dressings. The building will be three storeys in height, with a frontage of 286 ft. in Lord Edward Street, and running back a distance of 86 ft. to Castle Street. The main entrance will be from Lord Edward Street. Granite will be used in the base of the building, and Ionic columns will support the attic storey. Over the entrance there will be a central square tower, finished with decorated consoles, and it will provide space for a public clock. The front of the building will be 60 ft. high, over which the central tower will rise to a height of 50 ft., its total height, including the clock turret, being 128 ft. from the street level. On the Castle Street side it will be only two storeys high. In the vestibule there will be two rooms

—a waiting room on the right side, and the porter's room on the left. The main staircase will be approached through the central hall, and a lift will provide means of reaching the upper storey. The ground floor will be occupied by the Estates and Finance Committee, Distress Committee, Cleansing Committee, Markets and Water Rates Committees. The Electricity Department, a show room, drawing office, Assistant Engineer's office, committee room, Chief Engineer's and Clerks' offices, will be on the right-hand corridor of this floor. On the left the Estates and Finance and Rates officials will be accommodated with offices. There will also be on this floor a Labour Bureau, etc. The first floor will be divided into apartments for sanitary sub-officers, superintendents' rooms, inquiry office, and dairy and veterinary inspectors. At the Castle Street side of the building there will be a suite of offices for the clerical staff. The next floor will be set apart for the officials of the City Architect's department, the Public Health and Waterworks departments; the school attendance staff and Committee being accommodated on the Castle Street side of the building. All departments have been amply provided for. The new building will greatly improve the appearance of Lord Edward Street, the south side of which was unsightly.

Comments on the designs, which have been exhibited at the Technical Institute in Bolton Street, are reserved for a future issue.



FIRST FLOOR PLAN



GROUND FLOOR PLAN

NEW MUNICIPAL BUILDINGS, DUBLIN: PLANS OF FIRST-PREMIATED DESIGN.

MCDONNELL AND REID, ARCHITECTS.



NEW MUNICIPAL BUILDINGS, DUBLIN: FIRST-PREMIATED DESIGN.

MCDONNELL AND REID, ARCHITECTS.

### THE NEW DELHI SITE PROBLEM.

CAPTAIN SWINTON, Mr. Lutyens, and Mr. Brodie, the officially appointed town-planning committee for Delhi, reported last June unanimously that in their opinion the area to the south-west of modern Delhi was best suited to meet the requirements that had been specified for their guidance.

When the town-planning committee left India last summer the southern site seemed to be beyond rivalry. On their return to Delhi, however, it soon became apparent that fresh responsibilities were likely to fall upon them. Eventually they were asked to submit a special report on the northern site. The reasons for this step are thus given in an official communiqué which was issued in India on March 12th, in which the following statement appears:

"Sir Bradford Leslie, a distinguished engineer with Indian experience, put forward a definitely constructive scheme for siting the new capital to the north of the present city. At the same time a considerable volume of feeling in favour of the northern site found voice, and the advantages of this site were strongly advocated in the public press. In their former report the committee had come to the conclusion that the requirements of the Government of India—a healthy capital city to be laid out on a large scale and occupied for seven months of the year—postulated an area which could not be made available except at prohibitive expense on the northern site. The committee were therefore requested to investigate the possibility of effecting such reductions in the proposed area as would render it feasible to accommodate the new capital on the northern site, and were further requested to examine the advantages of Sir Bradford Leslie's scheme."

The town-planners, says the Delhi correspondent of the "Times," have just completed their investigations, and they have again rejected the northern site. Two important points are disclosed: the unhealthiness of much of the northern area, and the impossibility of finding ground for a cantonment.

The Viceroy, seeing the extreme importance of coming to a right judgment in the matter of their com-

parative healthiness, appointed a specially qualified committee to consider this matter and draw up a report on the subject. Their report has not yet been published, but it is understood that they held that even if it were possible to reclaim sufficient areas to provide space for the actual minimum of the requirements of the new city, that would not in itself be enough, but that it would be necessary also to reclaim ground for at least half a mile from the margin of this inhabited area by building up the soil to extents varying from 8 ft. to 11 ft. They have reported, it is believed, that the medical and sanitary advantages of the southern site are overwhelming.

As to the general disadvantages of the northern site, the extra cost of location is put at £872,000, as land to be acquired in the existing Civil Station would be very expensive, while a heavy outlay would be necessary in river-training works, the creation of a river frontage, and the raising of low-lying ground. The town-planning committee hold that the salubrity of the present city of Delhi could be obtained by a much less expensive form of river treatment. Unless confined within restricted limits by expensive works, Sir Bradford Leslie's proposed lake would flood a large portion of the Barari Plain and very wide expanses of land on the left, or east, bank of the river. The lateral loss by percolation is likely to be great and to affect prejudicially the subsoil water, which is already inconveniently high in this area. His proposal to place the Imperial capital on two square miles of land north of the present city, and between the city, the Ridge, and the river, with half a square mile of reclaimed river frontage added, plus a provision of land on the west of the Ridge for extensions, and a further area on the east of the river on an artificially raised embankment for minor residences, is made regardless of the minimum area requirements for the new capital.

It is stated that the committee have been able to show that their proposal to place the new capital on the southern site has certainly much to commend it from the standpoint of sound sentiment and historical feeling, while the temporary amenities of the northern site have no weight when placed in the balance with the permanent needs of the future. Such







THE NEW THEATRE, MANCHESTER. H. FARQUHARSON



1913.



*Photo: Bedford Lemere & Co.*

AND RICHARDSON, AND GILL, ASSOCIATED ARCHITECTS.





amenities as now exist on the northern site will be preserved, and, receiving in future with the old city of Delhi their fair share of development, will form an attractive and important addition to those of the Imperial capital. It is apparent, therefore, that the town-planning committee have made out a strong case for the southern site.

## OUR PLATES.

### *The New Theatre, Manchester.*

ARCHITECTURE in this country suffered a severe reverse when, in the early part of last century, the English Classic tradition was finally abandoned. Had there been but a sufficiently enthusiastic body of architects to carry on the tradition from the point where it was left by Elmes, Cockerell, Smirke, and the others of that brilliant Classic period, we should probably have avoided the Gothic Revival and the subsequent blunders of the Victorian era.

At length, after the lapse of nearly a century, the thread of the movement is again being taken up and developed—and mainly by the younger school of architects. The New Theatre at Manchester, recently erected from the designs of Messrs. Farquharson and Richardson and Gill, is the most notable achievement in the rejuvenated style. The architects are indeed to be congratulated on having produced a remarkably fine building; no theatre of a more scholarly and dignified character has been erected in this country for at least a century. The building is no mere copy of old work, but rather an intelligent adaptation of a style which is admirably suited to the diverse requirements of modern times. A general view of the exterior is given on the Centre Plate in this issue.

The foundations of the theatre were begun in January, 1912, but, in consequence of the coal strike and local labour strikes, the work suffered considerable delay. Operations were eventually resumed, and the building, from the level of the pavement to the roof, was completed ready for opening within eleven weeks. The house provides accommodation for about 2,700 people, all of whom have an uninterrupted view of the stage. The interior possesses a fine impressive scale (which is hardly realised in the photographs) and a few of the chief dimensions may appropriately be given. The height from the ground floor level to the middle of the curved and coffered roof is 80 ft., the proscenium opening being about 36 ft. wide and 37 ft. high. The fine panel in the tympanum over the proscenium, which was illustrated in our issue for September 4, 1912, is 28 ft. wide by 10 ft. high. Very careful study was given to the design of the stage and its equipment, in which respect it is second only to that of Covent Garden. The architects were indebted to Mr. Affleck for much valuable advice and for drawings of stage mechanism. It is naturally desired that no plans of the building should be published at the present time; but it may be stated that the planning is arranged on academic lines throughout, all the exits and entrances being grouped to form part of the internal design. Public safety and convenience have at the same time been carefully ensured. The theatre, which is wholly of fireproof construction, can be emptied within two minutes, each staircase communicating direct with the street.

The total cost of the building was approximately £34,000. The theatre, which occupies what is practically an island site well within the theatre zone of the city, is intended to be devoted to the production of high-class plays and operas.

The general contractors were Messrs. Ernest Hawkins and Co., the engineer being Mr. N. W. Nicholds. Messrs. John Tanner and Son carried out the whole of the internal decorative plaster work, as

well as the patent stone treatment of the exterior. Messrs. Hampton and Sons supplied the curtains and upholstery from the architects' designs, and they were responsible also for the cloakroom fixtures. The following firms were also among the sub-contractors: Messrs. Bratt, Colbran and Co. (stoves, grates, and mantels); Messrs. Oldroyd and Sons (heating and ventilation); Messrs. Val de Travers (asphalt); Messrs. Patteson and Sons (mosaic and mantel decoration and flooring work); Messrs. McCrea and Co. (plumbing and sanitary work and gas fixtures). A working drawing of the front elevation of the theatre was illustrated in our issue for May 29, 1912, and another showing a cross-section through the theatre at the proscenium opening in our issue for September 4, 1912.

### *House at Hampstead.*

The house which we illustrate on page 379, was built for Mr. C. W. Hart, from the designs of Mr. C. H. B. Quennell, F.R.I.B.A. It is carried out in red brick with a tiled roof, the treatment being simple yet of a dignified character. The accommodation may be studied from the plan reproduced on page 386.



THE NEW THEATRE, MANCHESTER: DETAIL OF BOX AND PROSCENIUM.

## CORRESPONDENCE.

*The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents.*  
*Correspondents are asked to be brief and to write on one side only of the paper.*

*The Cheap Cottage Problem.*

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—We will all agree with Mr. Swain that in a problem of this kind, while using the strictest economy, we should try to see things from the tenant's point of view. Therefore, we should provide a place for a "pram" or a bicycle without wasting space in a wide passage and without offending the housewife's feelings about the "front door." But by all means make the entrance lobby big enough for coats to hang on the wall facing the door.

You will see from my plan on page 297 that I have made alterations so that the cottages might be built in pairs: it would be a very simple matter for the larder and coal store to change places.

Nobody could pretend that it is ideal to put the bath in the scullery, but I think in a case of this kind the advantages have a big balance in their favour. It is our business to design doors that will not allow draughts, smells, and steam to pass them.

S. B. K. CAULFIELD, F.R.I.B.A.

London, W.C.

*The Small Suburban House.*

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—Having noticed the particulars of your competition for plans of a small suburban house on the lines suggested by "Ubique," I thought perhaps it might interest some of your readers to know that a similar type of plan is quite usual in this part of Canada. I am not referring particularly to semi-detached houses, for they are seldom built here, but to the smaller class of detached suburban house generally erected on a building lot of 50 ft. frontage.

As the servant problem is a very acute one in this western country (most families of ordinary means manage with occasional help from outside), every means is taken to lighten labour in the house, and to this end such modern conveniences as vacuum cleaners, gas stoves, coal hoists, electrical devices, etc., are often provided even in moderate-sized homes. Electric light is general, and most houses are heated either by hot water or hot air in addition to open fireplaces.

The ground-floor accommodation usually consists of a sitting-room (living-room), small "den" or study, dining-room, and kitchen, with a "pass pantry" between the two latter. The pantry takes the place of the English larder, and is fitted with dressers, pastry-bench, flour bins, drawers, and shelving. The kitchen contains the cooking-stove (either coal or gas), which stands away from the wall; enclosed ranges are never used. An independent hot-water boiler and a large white-enamelled sink complete the kitchen fittings. It may be mentioned that all taps and wastes are nickel plated, thus dispensing with the tedious polishing of brass.

Bedrooms are provided with hanging closets or more elaborately fitted wardrobes built in a recess. Frequently lavatory basins are placed in the bedrooms.

Staircases are planned amply wide (3 ft. 6 in. or more). I mention this because in English houses they are often so narrow that it is impossible to get any large articles of furniture up or down them.

In conclusion, it may be noted that there is usually a well-lighted cellar extending under the whole area of the house, containing coal-bins, store-room, and a laundry fitted with enamelled wash-tubs.

P. LEONARD JAMES, A.R.A.I.C.

Vancouver, B.C.

*The Strength of Camber Arches.*

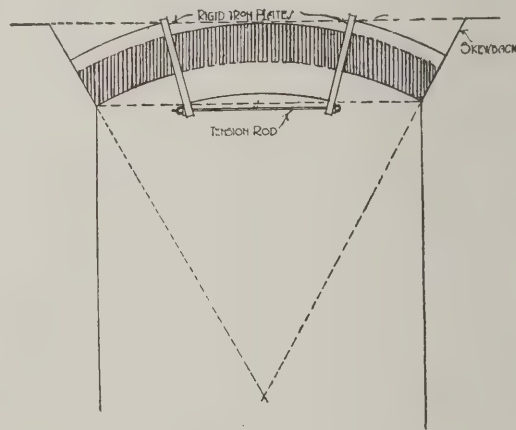
To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—A properly cut camber arch has all the joints of its voussoirs radiating from a common centre, although each course is of a different size; and the very essence of the theory referred to, and disputed by me, is that the skewbacks are radii of the arcs which circumscribe the "invisible arch" area. If, as "R. W. C." says, the portion outside of this area is extraneous in Fig. 1, it is obviously equally so in Fig. 2; and yet he avers that it is the "invisible arch" in this portion which saved the arch from collapse. The two statements appear to be contradictory.

The facts stated by Professor Adams in his letter, on page 348 of your last issue, support my contention that the angle of skewback is not the chief factor in determining the strength of the arch, and that the portion outside of the area referred to in the theory under discussion is serving a useful purpose. The latter also applies to a concrete slab.

I assume that Professor Adams does not contend that the segmental arch (concrete or brick) as shown dotted in his illustration is equal in strength to the rectangular arch or lintel in which it is contained?

If an arch were constructed as shown in the illustration, with two rigid iron plates (providing resistance



to horizontal shear) connected at the bottom by a tension rod (representing resistance to tensile stress in the lower portion of a concrete floor slab), it is obvious that this would prove stronger than an arch limited in area to that of the "concealed arch" of Professor Adams, as shown hatched on the same sketch.

I have no faith in any theory which is opposed to the dictates of common sense, and I am convinced that you cannot clearly define or limit the stress in a plain concrete slab to any particular part, and that stress originating in the centre is picked up and transferred to the outer edges until every inch of the slab is carrying some portion of it.

Mansfield.

L. E. WALKER.

*"Test Deflections in Reinforced Concrete."*

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—The extract given in your last issue from a paper read by Mr. Waldram before the Society of Engineers on "Test Deflections in Reinforced Concrete" is very interesting, especially as the subject has received very scant, if any, attention in published treatises on reinforced concrete. There are, however, one or two doubtful points in my mind which I hope Mr. Waldram will be so good as to elucidate.

The first is the moment of inertia of a reinforced concrete beam. The ordinary assumption when calculating the moment of resistance is to ignore the tensile strength of the concrete below the neutral axis,



consequently there seems no reason why it should not be so ignored when calculating  $I$ , which can be obtained directly from  $R_c$  or  $R_t$ , as stated in the paper. Of course, if the beam is economically designed  $R_c$  and  $R_t$  will be about equal, so that  $I$  for both materials will be the same. But supposing, for the sake of argument,  $R_t$  is twice as great as  $R_c$ , what value for  $I$  should be taken, and why?

The second point is, what value for  $E$  must be inserted in the deflection formula? Although the limit of deflection is given in the L.C.C. Draft Regulations as 1-600th the span, no definite formulæ are given for calculating it. By this  $I$  mean values for  $I$  and  $E$ .

X.

The above letter was sent to Mr. Waldram, who replies as follows:—

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—“X.” has, I think, failed to grasp the fact that the safe resistance of a section against bending in any plane can be determined by the safe stress upon any layer of fibres. In a reinforced concrete section heavily reinforced the stress on the outer skin of concrete is the criterion of strength, and the greatest bending moment which can be safely inflicted on the section is  $R_c$ . In a lightly reinforced section the stress on the steel is the determining factor, and the bending moment must not exceed  $R_t$ . At the economic ratio, when  $R_c = R_t$ , the chances of failure are equal.

The stress upon any layer of fibres is determined by the section modulus relating to that layer, and is measured by  $\frac{I}{y}$ ,  $y$  being the distance of the layer in question from the neutral axis.

The moment of inertia ( $I$ ) of any section is an arithmetical expression indicating the sum of every layer of cross-section multiplied by the square of its distance from the neutral axis. A section has therefore only one moment of inertia, but it has an infinite number of section moduli, and of moments of resistance (section modulus  $\times$  stress)—a different one, in fact, for every layer of fibres. The section modulus ( $5Mc$ ), which relates to the concrete fibres, is not necessarily the same as that ( $5Mt$ ) which relates to the steel fibres. If the two moments of resistance,  $R_c$  and  $R_t$ , relating to the two different layers of fibres have been correctly computed, they will equal  $c \times SMc$  and  $t \times SMt$ ; and if  $n$  be the distance ( $y$ ) of the concrete fibres from the neutral axis, and  $d-n$  that of the steel, then they will equal  $c \times \frac{I}{n}$  and  $t \times \frac{I}{d-n}$  respectively. The value of  $I$  will be found to be the same in each case.

All reinforced concrete sections are calculated by converting the steel into its equivalent area of concrete. The modulus of elasticity used should therefore be that of the concrete.

PERCY WALDRAM.

#### The Planning of Working-class Dwellings.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—The publication of the plans of proposed dwellings to be built by the Belfast Corporation in the “Journal” [March 12, p. 285] will probably lead to other corporations copying their example.

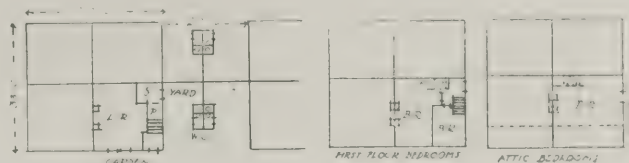
May I therefore—as one who has lived in a working man's dwelling—one who has a holy horror of the word tenement (*maisonnette* sounds different, but does not alter the effect), one who instinctively views with suspicion any socialistic attempt at housing the poor—may I offer a few words of candid criticism?

1. If it be competent for one corporation to halve the thickness of party walls and dispense with parapets and ignore the rule that each house must be separately drained to a main sewer, then let the L.G.B. circularise the public authorities throughout the land, giving these “privileges” to any house builder.

2. The plans illustrated are the best of their kind I have seen; but having, as I said before, lived in so small a house, I know the advantage of a comfortable fireside and a spacious living room, and would suggest that a front porch which robs the main room is not necessary or desirable, and more comfort for the occupants would be secured if the door of the bedroom was in the scullery. Two doors are quite enough.

3. Houses with only one bedroom cannot surely be considered as “family houses.” The occupants, on whom the future of the British Empire so much depends, will soon know better than to have children, or, if not, will need State nurseries as well as State houses, the bed recess notwithstanding.

Now, I should like to invite the opinion of readers interested in “housing” as to what is amiss with the plans such as I sketch out below.



These houses were built by the hundred in Yorkshire manufacturing towns up to the time of the publication of the “Model Bye-Laws of the L.G.B.,” but, excepting in Leeds, are now seldom built, and the workman with only £1 to £1 10s. a week has been forced into tenements or to emigrate in consequence.

Each cottage has through ventilation—quite separate garden. The occupants can go “upstairs to bed.” In case of illness, better isolation, therefore less need for State isolation hospitals; and, what is more important than all the rest put together, space provided for four beds.

In order to anticipate criticism, let me say that while it is at present fashionable to put w.c.'s and ash places in the front or back porches of workmen's dwellings, in order, I suppose, that the artistic side of him may be developed, he has sense enough to prefer these places out in the open. I know him well, and have many times profited by his “candid criticism.”

BUILDER.

#### The Regent Street Quadrant Report.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—At the recent exhibition of Mr. Norman Shaw's work held at the premises of the Architectural Association two drawings that were shown seemed to suggest that Mr. Shaw had himself anticipated the recommendation of the committee that the adjacent buildings should harmonise with the Piccadilly Hotel, but should be treated in such a way as to meet the views of the shopkeepers. These drawings were the designs for Messrs. Swan and Edgar's front in Piccadilly. They showed the main cornice of the hotel carried round into Piccadilly on big isolated columns which formed a kind of open semicircular loggia at the angle of Piccadilly and the Quadrant. The treatment of the elevation along Piccadilly was harmonious with what has already been built, but quite different from it, and in particular the huge piers and arches had given place to small piers carrying a horizontal entablature, or, it may have been, just a shop fascia or cornice.

I am describing the design from memory, but the impression left on one's mind was that of a really fine façade of a kind that the shopkeeper should take no particular exception to. No doubt the committee have had this design before them, but it would be interesting if it could be published.

ARTHUR KEEN, F.R.I.B.A.



## HERE AND THERE.

PARIS revisited is the theme for a few notes this week. Perhaps the first thing one notices is the change in the street traffic—a change which is forced on one's attention by the necessity to gain another lease of life at every crossing. I had heard of an arrangement of street signals, with an arm to indicate when the traffic was to stop and when to go on, but I caught no glimpse of it in Paris, and assume, therefore, that this arrangement has been tried and found wanting. I had heard also of the white bâton, an official French transformation of the white-gloved hand of the London policeman, but this "bâton Lepine" was more in evidence in the sweetstuff shops than in the midst of the traffic. A gendarme, in a rare moment, I saw holding up one stream, and at another point a whistle was used as the signal, reminding one of the London cab calls or the order to let go the last hawser on one of those great liners that slip so quietly from the landing-stage at Liverpool. But for the rest the chauffeurs are left to please themselves, and they do this at such a pace that the most dangerous crossing in London is a positive harbour of refuge in comparison with any junction of rue and boulevard in Paris. In a moment of inspiration one might describe how friends and relatives make their wills and bid one another tearful farewells on the pavement edge, thence, in wild abandonment, to make a dash for the other side, but at any ordinary time one may stand astonished at the chaos which prevails amidst the taxis and motors that race along at more than twenty miles an hour.

Having been fortunate enough to be preserved from destruction, one may walk about the city in the greatest comfort and see all the new things. Paris, like London, is always rebuilding, so there is nothing unusual in the sight of scaffolding and hoardings. What is astonishing, however, is the beautiful way in which all the work is finished. The façades are always carried out in a most delightful cream-coloured stone that is soft enough to give the fullest opportunity to the carver, yet has a good weathering surface, and keeps remarkably clean. If any one such façade were put up in London we should certainly look twice at it, but in Paris, no matter where you go, there are so many examples that you soon begin to accept them all as a matter of course. There is undoubtedly a great similarity among them—the high doorway, with its nicely-columned or pilastered vestibule, the equally-spaced windows, with their iron balconies or grilles (the latter often of rather indifferent design), the carved enrichments, and the well-proportioned cornice—but they make most satisfactory street fronts, and we heave no sigh of regret for the promiscuous variety of the Strand, the garish license of Holborn, or the depressing bleakness of Charing Cross Road. I noticed a hundred new façades, and was pleased with them, but can give no detailed reference. Near the Opéra, however, are two large new buildings of special note—one an American insurance building, the other occupied by the Société Générale. Both have an arcaded ground-floor storey, with pilasters above, and in both cases the difficulties involved in corner treatments have been very successfully overcome.

But among new work in Paris nothing is so astonishing as the three big shops—La Samaritaine, Le Printemps, and the Galeries Lafayette. London can offer nothing to them in the way of immense interiors. Steelwork has here been given the fullest expression, and it stands revealed for a height of, perhaps, 100 ft., the stanchions and beams decked out in gay colours, the rivet heads gilded, and metal embellishments added with great profuseness. The huge steel domes that cover the areas are filled out with stained glass of

rainbow colours; in fact, the colour scheme is carried out as completely as it was in a mediæval Gothic church. By daylight, or when illuminated by thousands of electric lamps at night, these shops are amazing examples of modern work, but one does not recall them with any sense of satisfaction. One of them, at least—Le Printemps—has been designed by a distinguished architect, but there is a sense of vulgarity about all three, and the rotundas in Waring's and Whiteley's, even if poor little places in comparison with such a vast scheme as the Galeries Lafayette, leave on the mind a more pleasing impression.

But with regard to what may be called the ordinary shops, there is no question that the fronts they present are unequalled in London. I am not now taking into consideration the great areas of glass that delight the shopkeepers of Regent Street and Oxford Street, nor the window displays themselves, but the design of the shop-fronts and the manner in which they are carried out. No street in Paris offers such a fine array as the Rue de la Paix. Here, indeed, is to be seen a variety of treatment which is a perfect delight to study. Some of the fronts are carried out in bronze, some in marble, some in wood and glass, some in stone, and, almost without exception, they are designed with consummate taste. Well might some English firms follow such models. They give the shopkeeper a good window area, and they satisfy the architectural requirements. These shop-fronts do not come within the category of sheets of plate glass fixed between piers at the widest possible intervals, extending down to a mere rib of metal at pavement-level; and in this respect especially they offer very convincing proof that such a scheme is not the only possible one from the commercial point of view.

Turning to another feature of Paris, I would note that one of the things in which the authorities do not excel is that of street repair. On former visits I have been made painfully aware of this fact, and the present state of many main thoroughfares offers abundant evidence that the municipal department which has charge of street repairs has not yet seen the error of its ways. Places are pulled up on the pavements and in the roadways, the heap of débris is encircled by a cord, and the whole is then left to itself for an indefinite time. The cab I was in drove for twenty yards and more along the unprotected edge of a street excavation about five feet deep, and at a dozen points one had to stumble past heaps of asphalt and earth that littered the footway. The London County Council has enough sins to its credit, and we are not unfamiliar with the gas and electric-light prospectors who stake out their little plots in the middle of Fleet Street, but, with all our faults, we do not leave muddles about the roads for days and weeks together, as they do in Paris. As regards the cleaning of the streets, however, there is much cause for satisfaction. Most of the Paris streets are asphalted, and, putting out of account the great avenues—like those that lead up to the Arc de Triomphe or the Opéra—most of the streets are narrow. But it is not in this respect that they are satisfactory, for, the houses being high, it can well be imagined what a volume of sound comes into the rooms from the motor-Babel of modern Paris. Rather one's approval is aroused by the very complete dust and dirt collecting that goes on daily, and by the sight of the gutters running with water, an operation which is carried out three times every twenty-four hours—at 3 o'clock in the morning, at 8, and at 3 in the afternoon. The streets are thus admirably cleansed, and there is none of the besmirching by traffic which is so common in London thoroughfares.

UBIQUE.





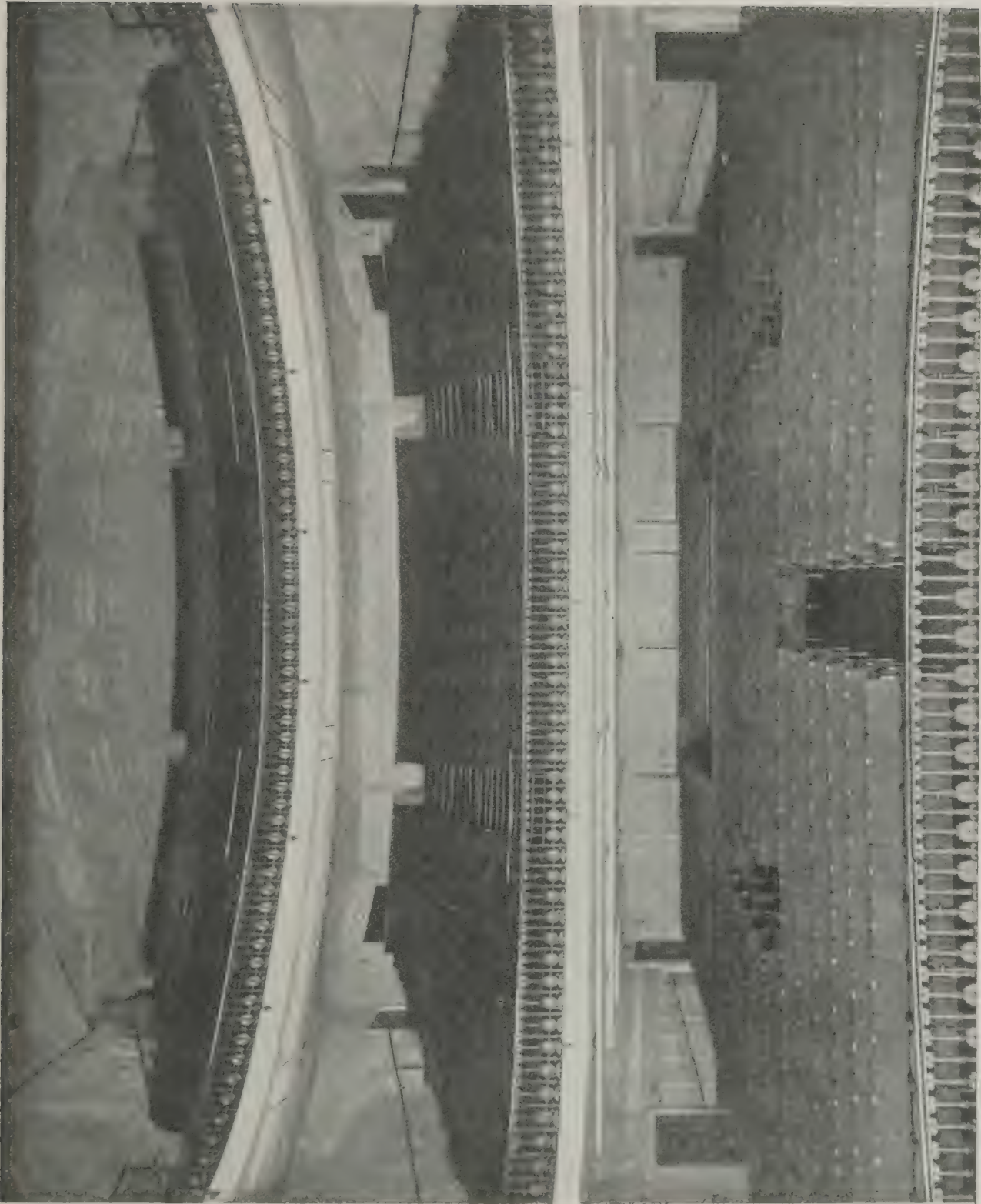
*Photo: Bedford Leure & Co.*

THE NEW THEATRE, MANCHESTER: DETAIL OF UPPER PORTION OF PROSCENIUM AND CEILING.  
H. FARQUHARSON, RICHARDSON AND GILL, ASSOCIATED ARCHITECTS.

(See page 371.)

LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS





*Photo : Bedford Levere & Co*

THE NEW THEATRE, MANCHESTER: VIEW OF AUDITORIUM FROM STAGE. H. FARQUHARSON, RICHARDSON AND GILL, ASSOCIATED ARCHITECTS.

(See page 371.)

LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS



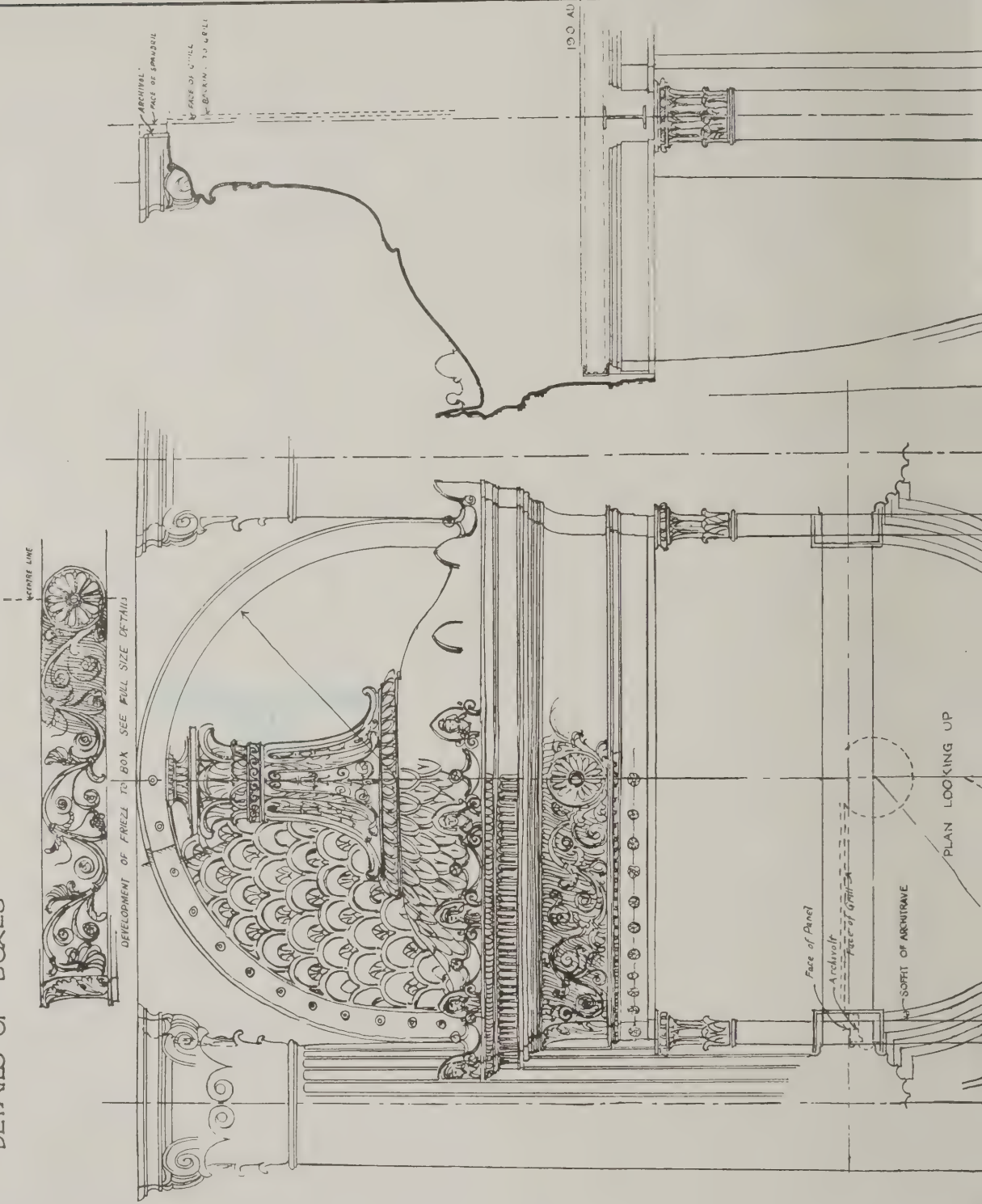


MODERN DOMESTIC ARCHITECTURE. HOUSES OF INTERMEDIATE SIZE. IV.—HOUSE AT HAMPSTEAD, LONDON, N.W.  
C. H. B. QUENNEL, F.R.I.B.A., ARCHITECT.

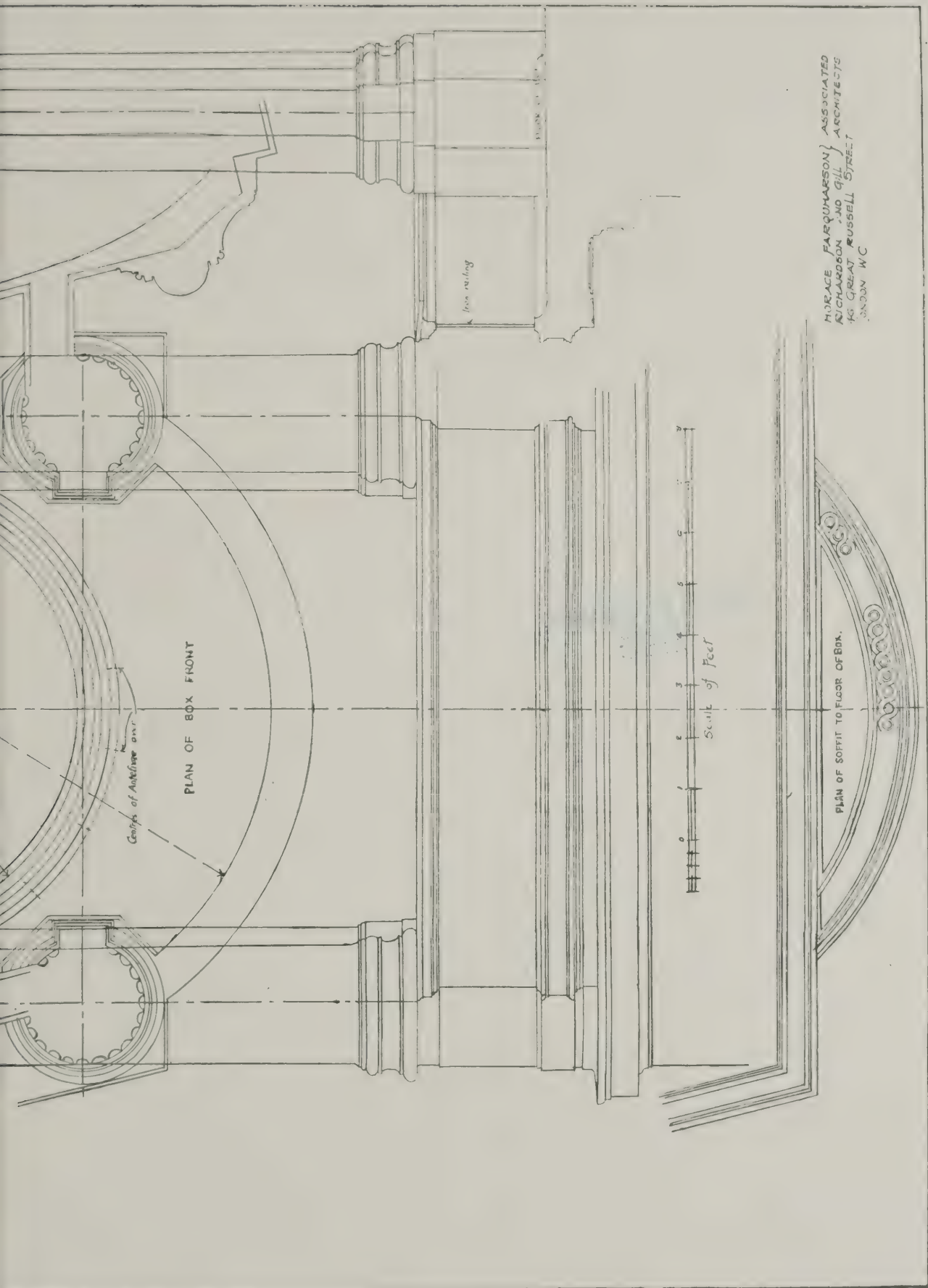
(See pages 371 and 380.)

HIS MAJESTY'S THEATRE MANCHESTER  
DETAILS OF BOXES

N° 102







WORKING DRAWINGS BY WELL-KNOWN ARCHITECTS.—XXII. H. FARQUHARSON, RICHARDSON AND GILL, ASSOCIATED ARCHITECTS.

(See page 371.)

## ENQUIRIES ANSWERED.

### *Compensation after Vacation of Tenancy.*

J. A. R. writes: "A B C D represent two blocks of business premises owned by H. I., on land leased for 99 years from 1875. H. I. has also occupied on a yearly tenancy the land behind this street of leasehold property. See E F G J K L M. From time to time structures built of brick with (some) slated and (some) corrugated iron roofs have been erected by H. I. for his business as a joiner and building contractor, starting first with a workshop in 1877 costing £100. This was added to in 1893 and again in 1899. The rent for this plot was also increased, beginning at £1 10s. per annum, then £3 3s., then £6."

"The Government valuation to-day of these workshops is £500. The original ground was poor pasture land. To-day that which is not used for the builder's business is laid out in good garden plots and let to the tenants of the houses in the street adjoining. The landowner has given the tenant notice to vacate the premises. Please say (1) whether compensation is due to the tenant for improvements, including the value of the workshops, less depreciation. (2) If so, should he hold possession until compensation is paid? (3) What would be reasonable compensation? The workshops will last another fifty years."

—I assume that the long leasehold portion of the property is a quite distinct holding and has nothing whatever to do with the rear portion; and that there was no clause in the contract or "building agreement" for the front land, which affects the back land. If this is so, the back land (E F G, etc.) is held merely upon an annual tenancy, which can be terminated by notice in the usual way upon the anniversary of the day on which it began. If there is a written agreement of tenancy (or correspondence amounting to a written agreement) the surrender of the land is subject to the terms mentioned therein (possibly giving the right of removal of buildings?).

In the absence of any such agreement, and if the tenancy be a verbal one: The tenant is entitled to no compensation whatever for improvements or for buildings. He may remove any building which is purely of the nature of a fixture—such, for instance, as a wooden or iron building not affixed to the soil.

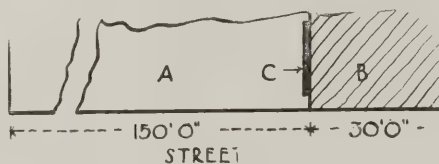
He may not remove any building, so

permanently constructed that it has become a part of the freehold; in this respect the law is a little more lenient to the tenant in the case of trade fixtures and buildings than it is to an ordinary occupier, and each erection must stand upon its merits; the question to ask oneself is: "Can the fixture (or building) be used for anything but the special purpose for which it is now employed?"

F. S. I.

### *Easement for Advertisement Signboard.*

W. J. S. writes: "A is a ground storey building only; B consists of two or more floors. For thirty years at least there has been an advertisement sign on the wall of B at point C, over the roof of A. A's



owner wishes to raise the whole of his building another storey, thereby blocking out B's sign. Has B's owner any ground for preventing this action?"

—So far as I am aware, no legal decision has ever been given upon this particular point. Had a window existed in the same position for so long a period there is no doubt whatever, but that a right to the easement of light would have been acquired, and personally I think it quite legally possible that a right to the easement of display (!) has accrued in this case after twenty years uninterrupted enjoyment (Prescription Act, 2 and 3 Will. IV. c. 71).

Even if this is so it should not be a very difficult matter for A to come to arrangement with B.

F. S. I.

### *R.I.B.A. Freehand Subjects: Books on Paris Architecture.*

GOth writes: "(1) I am so situated that I cannot attend a school, and should be obliged if you would tell me where I can obtain copies of past subjects set for freehand drawing in the Preliminary Examination of the R.I.B.A. (2) Can you recommend a good book, in English, dealing with the architecture of Paris?"

—(1) The subjects set for freehand drawing in the Preliminary Examination of the R.I.B.A. are not published in the Institute Calendar with the rest of the examination papers, because the subject varies with each centre where the examination is held. The instructions to the various centres are to provide a simple cast or other object. Goth may take it that this generally means a cast of a Roman Acanthus leaf, a Renaissance pilaster, or Gothic capital—one of the ordinary architectural casts which every school of art possesses. When a cast is not available a pile of books and an inkstand, a couple of chairs and a table, or a desk would be considered to do equally well. (2) There is no single book as far as I am aware in English dealing exclusively with the architecture of Paris. The best general account I know is to be found in Baedeker's "Guide to Paris." If, however, Goth has read either W. Blomfield's or W. Ward's "History of the French Renaissance," he will already be familiar, both by illustration and description, with a large number of the best buildings in Paris. He will know, too, their relation to French architecture as a whole, which no book on Paris alone could give him.

C. H. R.

### *Books on Working-Class Houses.*

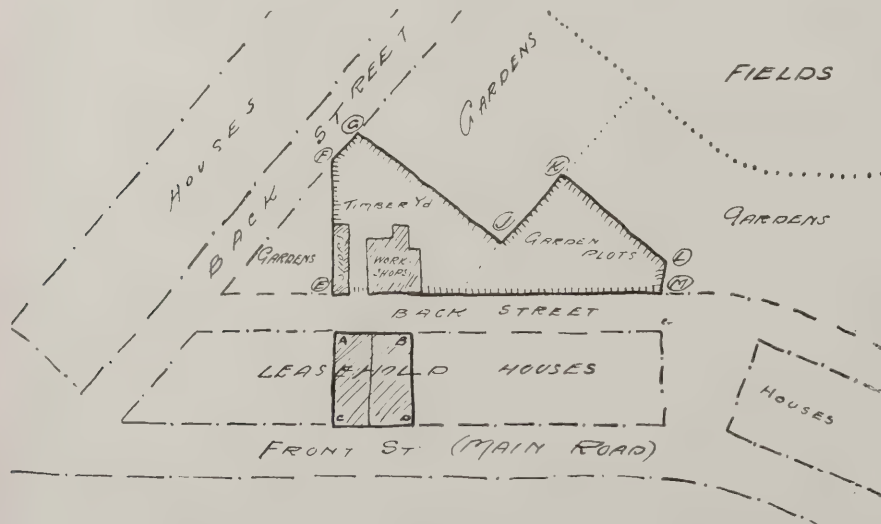
P. J. N. (Newry) writes: "Please recommend books dealing specially with the design of workmen's houses on the 'garden village' plan."

—"Houses for the Working Classes," by S. W. Cranfield and H. I. Potter, A.R.I.B.A. (price £1 1s. net), and "Modern Housing in Town and Country," by James Cornes (price 7s. 6d. net). Both are obtainable from Mr. B. T. Batsford.

### *Storage of Petrol.*

REX writes: "Kindly give information as to the best method of constructing a storage for motor spirit; the quantity need not exceed about eighty gallons."

—The storage of petrol spirit is under regulations laid down by the Secretary of State and administered by the Local Authorities (Locomotives on Highways) Act, 1896. There are three cases in which a licence, accompanied by restrictions which affect builders, is necessary, viz.: (1) Where it is intended to sell spirit. (2) Where the store house is attached to or forms part of a dwelling house. (3) Where more than sixty gallons of spirit is to be kept. If less than the latter quantity is stored, the spirit may be kept in approved safety cans (the ordinary two-gallon cans of vendors) in a small fireproof building which should be, wherever possible, at least 20 ft. distant from any other building or from the boundary of the site, as, if within 20 ft., notice has to be given under the Act, and inspection allowed, though a licence is not necessary except under conditions as above. The building should be fitted with an iron door and its walls provided with ventilators having gauze protection. The floor, of concrete floated with cement, should be sunk below the ground level, and the door should have a raised sill. This sunk place is filled with sand. The cans should be close to the door in order that they may be easily accessible and that the chauffeur need never stand inside. It is a punishable





offence to allow the smallest quantity of spirit to escape into any drain or sewer. The London County Council (who are the authorities for London) publish detail drawings of intercepting tanks through which all surface drainage must pass before entering the sewer. A larger quantity than sixty gallons is best stored in underground tanks. A moderate quantity may be kept in an ordinary galvanised-iron tank sunk 2 ft. in the ground and surrounded with concrete say 12 in. thick. A semi-rotary pump in connection with it draws off the spirit. The pump-house should be constructed with similar precautions to those detailed above. Any vent pipe from the tank or house should be carried some feet above the roof and protected with a wire gauze screen near the bottom.

G.

#### Government Publications.

E. R. D. writes: "Please say where I can obtain the most recent building regulations of the Board of Education, the Education (Administrative Provisions) Act, 1911, and the Reports of Departmental Committees of the Board of Education on (1) the cost of school buildings, 1911, and (2) playgrounds, 1912."

—All these Government publications may be obtained direct from Messrs. Wyman and Sons, Ltd., Fetter Lane, London, E.C., or through a newsagent. G.

#### U.D.C. and the Provision of Sewers.

CONSTANT READER writes: "The local U.D.C. refuse to pass plans or take over new streets (and also dwelling-houses) unless these streets are provided with two sewers, one for sewage and the other for rainwater. They take their stand on Section 150 of the Public Health Act, which provides for new streets to be sewered, etc., to the satisfaction of the Council. I shall be glad to know if they have power to do this and also if any cases have been decided on this question."

—The section quoted is usually relied upon as being sufficiently powerful to enforce the provision of "storm-water sewers" as well as "foul-water sewers." I am of opinion that the U.D.C. are within their legal rights in calling for a separate sewer for rain-water—that is, if their district is provided generally with the double system. If they themselves have no storm-water system of sewers, I am doubtful whether they can insist upon a landowner making that provision when laying out a new street. Cannot the rain-water be diverted to a very simple drain discharging into a ditch or water-course adjacent? This is a very usual way of disposing of surface water, which it is certainly not desirable to turn into the foul-water sewer if that effluent has to be treated at the outfall.

F. S. I.

#### Ventilating Cavity Walls.

A. J. W. (Leicester) writes: "Is it desirable to ventilate the cavity in a hollow wall, or should the cavity be completely enclosed? For instance, in a house where the external walls consist of two half-inch thicknesses, with a 2-in. cavity between, should air bricks be provided in the outer thickness just above the ground and just below the eaves?"

—There is something to be said both for and against the practice of ventilating the cavity of a hollow wall. If unventilated the imprisoned air has the greatest degree of effectiveness as an insulation against external heat or cold, but, on the other hand, dampness penetrating the outer skin

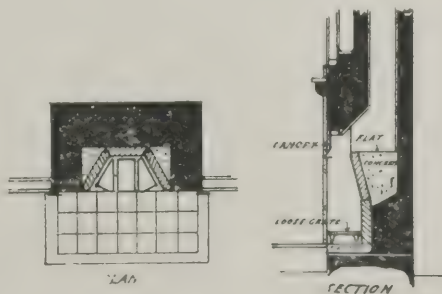
has less chance of drying out and is more likely to affect the inner skin and floor timbers, which in an 11-in. cavity wall have their ends exposed to the cavity. If the cavity is ventilated the circulation of air results in nullifying to some extent the insulating properties, though increasing damp resistance; both these results are most apparent in the case of 11-in. walls. In America, where cellars containing a central heating stove are usually adopted, the cavity is frequently ventilated at the bottom by openings communicating with the cellar, the outlets at the top communicating with the roof space, thus utilising waste heat. If the cavity is ventilated, as Querist suggests, with external air bricks just above the ground and outlets below eaves, warmth will be rapidly lost owing to the  $4\frac{1}{2}$ -in. inner thickness radiating heat to the cavity, thus causing a brisk upcast current drawing in cool air and continually robbing the wall of its heat. A better system is to arrange for the admission of air below the floor space by flues not in communication with the cavity, ventilating the latter from below the floor internally. This system was explained in the article on cavity walls which appeared in the "Journal" on March 12th, 1912, to which Querist is referred for further information.

G.

#### Curing a Smoky Chimney.

SMOKE writes: "I should be obliged if you could suggest a remedy for a smoky chimney. The circumstances are as follows: The fireplace, which is similar to another that has given complete satisfaction, is built into a wooden chalet facing west in an exposed position on the brow of a hill, clear of buildings and trees. Two patent chimney-pots have been tried in succession, but neither has made much improvement. Other devices have been adopted, but with little success. The fireplace opening was also reduced by filling up above the hobs with loose bricks, and the lower part of the vertical opening between the fireplace and the flue has been temporarily blocked, but without effect. The fire smokes worst during a north-east wind or when there is no wind at all. A distinct down-draught can be felt by placing a hand in the flue."

—The case apparently is a stubborn one, and treatment by patent pot is unlikely to meet with success. The flue is, of course, very short, but short flues do not always fail. I suggest that insufficient air supply to the grate may be at the root of the evil. To minimise trouble and expense it may be well first to attempt to improve the existing fireplace by removing the fire-



brick bottom and rebedding the bricks 1 in. apart, leaving these spaces open to afford air channels below the fire. The flue apparently acts as an air inlet to the room. The provision of a special air duct to the fire may also effect some improvement. If these measures do not prove successful try as an experiment the erection of a temporary inclined back and sloping sides as shown in the revised section (see sketch),

and if this meets with success, fit a fire-brick interior on those lines. The flat filling-up behind the "Teale" back is essential, also the continuation of the sloping sides to at least an equal height. Querist is advised to consult Count Rumford's "Essays," wherein he will find a very careful investigation of the smoky-chimney problem. The fire-hearth may be either a loose iron grate-bottom, as shown on the section, or a spaced firebrick bottom, as shown on plan. The canopy covers the unsightly opening to the flue, and should be removable for sweeping. A fire of this type rarely fails in operation if the flue is a well-built one with no irregular pockets or cavities, i.e., of not more than the mean diameter in any part.

G.

#### Solid Wood Floor.

SUREFOOT writes: "Would 3-in. wide deal joists, laid flat and touching, covered with 1-in. floor boarding, form a sound floor to carry 1½ cwt. per foot super. over a clear span of 7 or 8 ft., the joists continuing over a central support or supports? If not, could the necessary safe depth be given. This, I take it, would be practically fireproof. The floor would have to carry in places 2 in. "Mack" or similar partitioning."

—The safe span for a solid wood floor would be given by the formula  $S = 3.464 \sqrt{wt}$ , where  $S$  = clear span in feet,  $t$  = thickness of solid timber, excluding any boarding on top,  $w$  = cwt. per foot super. to be carried by floor. If the required load is 1½ cwt. per foot super. the formula can be simplified to safe span in feet = 3 times thickness in inches, therefore 3-in. deals close together would carry safely over 9 ft. For 1½ cwt. per foot super. the safe span in feet would be 2½ times the thickness in inches, or for 3-in. deals say 8 ft. span. A Mack partition does not as a rule distress a floor more than its ordinary live load. A solid wood floor is fire-resisting for an appreciable period, but is, of course, not fireproof. No extra allowance should be made for the deals being continuous.

HENRY ADAMS.

## IN PARLIAMENT.

(By Our Press Gallery Representative.)

#### New Government Buildings in Edinburgh.

In the House of Commons Mr. Hogge was informed by Mr. Wedgwood Benn that the First Commissioner of Works was unable at present to fix a date for the issue of the terms of the competition for the new Government buildings in Edinburgh. An assessor had not yet been appointed, though negotiations on the matter were in progress. In the course of debate in Committee of Supply, Mr. Hogge, reverting to the subject, suggested that an alternative site to that of the Calton Prison site should be selected for the new buildings. He anticipated the erection at some future date of a Parliament House for Scotland, and thought the Government offices and the Parliament buildings should be adjacent. Mr. Wedgwood Benn stated that the Government did not intend to vary the site.

#### Housing Loans.

Mr. Masterman stated, in reply to Sir A. Griffith-Boscawen, that in 1912-13 (up to March 20, 1913), the amount of money advanced by the Public Works Loan Commissioners under the Housing Acts was



£473,276, as compared with £285,932 in 1911-12.

#### *Fair Wages in Government Contracts.*

Mr. Hodge asked whether the written undertaking that is signed by firms invited to tender by contract was to the effect that the fair-wages clause would be observed in its entirety as respects all the workmen employed, or whether it only applied to the workmen who would be employed on the contract; and whether consideration had been given to the fact that to invite an unfair firm to tender, even with such an undertaking, was not in harmony with the spirit of speeches made by the President of the Board of Trade in this House, and that to refuse to invite a firm to tender unless it was already a fair firm was the only way calculated to make the administration of the fair-wages clause a success.

Mr. Wedgwood Benn, in a printed reply, stated: In these matters the First Commissioner is bound by the terms of the Fair Wages resolution, which applies to workmen employed on Government contracts and not to other workmen in the employ of the contractors. The First Commissioner would refer to the statement of his predecessor on this matter made in this House on March 10, 1909, which indicates the practice of the department. It should, however, be understood that the fact that a firm is a notoriously bad employer would be considered in connection with the question whether it should or should not be admitted to tender.

#### *The New Delhi.*

Mr. King asked the Under Secretary for India whether Mr. John Begg, consulting architect to the Government of India, had been consulted on the lay-out and building of the new Delhi, and, if so, whether his views had been expressed in a form that could be made public.

Mr. Montagu said the Secretary of State had not yet received the final report of the Committee and other papers bearing upon it. He was therefore unable to say whether the consulting architect to the Government of India had recorded his views on the subject, although he had no doubt Mr. Begg had been consulted. In reply to further questions, he stated that Sir Swinton Jacob was not at present in India, but it was hoped that he would meet the selected architects in this country next month and visit India during the next cold weather. Plans and drawings had not yet been received from Mr. Lutyens and Mr. Baker, and he could not say therefore when they would be exhibited. The Delhi Town Planning Committee he understood had presented its report, but it had not yet reached this country, so that he could not say whether it would contain a plan of the lay-out of the new city. The Secretary of State would bear in mind the wish of members to see the plan at an early date.

#### *Unemployment in Building Trades.*

Mr. Fell asked if the number of unemployed, as stated in the "Labour Gazette," was a great deal too low, and if the percentage should be over 8 per cent. for March for those engaged in the building trade.

Mr. J. M. Robertson, Secretary to the Board of Trade, said he was aware that in the case of the building trades there was a considerable difference between the unemployed percentages, according to the statistics of insurance, and those based on trade union returns. In these trades the trade union records of men out of work related mainly to carpenters and plumbers.

The percentages based on these figures had been found in the past to be a fairly good barometer of the general course of employment in the building trades as a whole, but they had not been used by the Board of Trade as a measure of the total volume of unemployment, and the inclusion of builders' labourers would naturally raise the percentage considerably. It might be remembered that Mr. Ackland, in his actuarial report on the unemployment insurance scheme, made allowance for this by doubling the recorded percentages of unemployed in the building trades for the purpose of his calculations. As soon as the records of the insured trades made it possible to give the percentage out of work based on the whole number employed, the figure was published in the "Labour Gazette" and would continue to be so published.

### COAL GAS FOR DOMESTIC PURPOSES.\*

BY F. W. GOODENOUGH.

I should like first of all to touch upon the use of fuelless gas heating stoves in the house. These are of two kinds. There are, first, what are known as condensing stoves, comprising one or more argand burners with chimneys discharging into copper tubes, in which the moisture produced by the combustion of the gas is condensed and flows into a pan underneath. These condensers are exceedingly satisfactory for heating bathrooms, small halls, passages, and other parts of the houses where there are no fireplaces and where a gentle warmth is sufficient.

Then there are the so-called "radiators" (or, more correctly, convectors), which are similar to steam and hot-water radiators in appearance and mode of imparting heat, but are heated from below by gas instead of being fed with steam or hot water from a central boiler. The cost of installation in the case of these gas heaters is, of course, much smaller than that of centrally heated radiators, and they can be used with much advantage for the heating of large halls, corridors, staircases, and other parts of the house where there is frequent change of air and where it is desired to warm that air to a moderate extent. It will be observed that these so-called radiators heat the air by convection, which is just what a true radiator would not do.

#### *Gas Economical for Cooking.*

I shall be asked, of course, to answer the question: "Is gas economical for cooking as compared with coal?" Well, my reply is a very simple but, I think, a very conclusive one. There are now, in London alone, somewhere about 750,000 gas cookers (and the number is constantly increasing) used by consumers whose means are so limited that it is a convenience and an advantage to them to buy their gas at a pennyworth at a time through automatic meters; and proportionately the same is true throughout the kingdom.

The costliness or the economy of cooking by gas is all a question of common-sense and ordinary care. The whole trouble of excessive cost in the use of gas for cooking, where it occurs, lies in the ignorance sometimes, but also in the thoughtlessness too often, of the servants to whose tender mercies the use of the cooking apparatus is entrusted. It rarely arises where the mistress of the house does

her own cooking—never when she has once learned how to use her stove.

It is not realised by everyone, until it is pointed out, that it is extravagant to turn up the boiling burner under a kettle or a saucepan until the flames are flaring round the side of the vessel. It is not realised intuitively that economy is effected by only turning the flame to such a height as will keep it well under the bottom of the vessel. It is not realised by most people until the fact has been pointed out that old iron pots and pans that have been used on the kitchen coal range are less economical to use than tin or aluminium ware utensils which present very much less obstruction to the passage of the heat from the flame to the contents.

It needs to be pointed out to most people before they realise it that utensils that have been used over a smoky fire and consequently have a deposit of soot underneath require far more gas to heat their contents than does a vessel with a clean bottom that has no insulating material between the flame and the metal.

#### *Economising Oven Heat.*

Most people also have to be taught that the oven burners can be steadily turned down after the oven is once thoroughly heated, and can eventually be turned out some time before the cooking processes in the oven are completed, because the oven is lagged with insulating material which continues to give off heat inside the oven long after the gas has been turned out. A proof of this is provided by the fact that if the gas be kept on until cooking in the oven is finished a pail of water placed inside the oven will be heated by the warmth still contained in that oven to a sufficient temperature to make it useful for washing-up purposes.

A prejudice still lingers in the minds of some people against having their food cooked in an oven in which gas is being burnt. The products of its combustion, which those who are not perhaps quite unbiassed in their opinion concerning the use of gas are fond of calling its noxious fumes, really consist of water vapour and carbon dioxide, an inert and perfectly innocuous gas. Those who entertain this suspicion of gas-cooked food may be reassured. The "Lancet" made the question the subject of careful inquiry some 20 years ago, and exonerated gas-cooked food from the suspicion of being affected by the products of combustion.

#### *Types of Apparatus.*

Having emphasised the necessity for keeping the cooking and hot-water apparatus separate, the lecturer said that where there is already a circulating system in operation for the supply of hot water, with the kitchen range boiler as the source of supply, all that is necessary, assuming the circulation is satisfactory, is to instal a boiler heated by gas (generally known as a "circulator") alongside the kitchen range, with the flow and return pipe from the circulator connected with the flow and return pipes from the coal range boiler. This does not affect the operation of the superseded boiler if for any reason it is subsequently desired to use the coal fire.

These gas boilers or circulators can be fitted with a thermostatic valve, which reduces automatically the supply of gas to the boiler upon the water in circulation reaching a pre-determined temperature. By this means economy in consumption is secured and over-heating of the water avoided. Where no circulating system with storage tank exists—as in some old-fashioned houses—a system for providing hot water throughout the house can easily

\* Extracts from Mr. Goodenough's second lecture given on March 10th before the Royal Society of Arts.



and economically be secured by the installation of a gas-heated boiler, in which there is, according to size, storage capacity for from say ten to forty gallons of hot water, from which there is a direct flow to hot water taps throughout the house. These boilers are fitted with thermostatic gas control valves which cut down the consumption of gas as soon as the quantity of water stored in the boiler reaches the desired temperature.

Another type of apparatus for supplying hot water from a central point to a number of hot water taps is that known as a "Califont," which is an apparatus designed to heat water and distribute it practically instantaneously to any hot water tap in the house connected to it. The gas valve is operated by water pressure, so that directly a hot water tap is turned on, the gas, which was previously alight but turned very low, goes up to its full extent and heats a large quantity of water very quickly on the same principle as that of a geyser. The question of whether a storage boiler or an instantaneous heater should be adopted in any particular case must be determined by the particular circumstances of that case—particularly as to whether the demand for hot water is intermittent or almost continuous.

#### *The Geyser.*

Finally, there is the geyser, for supplying hot water at short notice and in a continuous quantity at any given point, such as a bath, a basin, or sink. These appliances are frequently adopted where the requirements of hot water are practically limited to the bathroom and the kitchen, the supply for the kitchen being obtained by means of kettles on the gas stove. Geysers are, like all gas water-heaters, highly efficient appliances, absorbing at least 80 per cent. of the heat in the gas consumed, and they can be used with perfect safety, provided that they are fixed to an adequate flue discharging its products completely outside the room and guarded against back-draught.

The fixing of geysers without flues cannot be too strongly condemned, as witness the sad occurrence that are on record, and anyone who recommends the use of a flueless geyser for a bathroom incurs a very grave responsibility. As I have said, each of these four systems of water heating has its place in the solution of the domestic hot water problems. Which is the best for any particular household can only be determined after consideration, by an expert, of all the circumstances of the case.

### A MANUAL OF FIRE PREVENTION.

Fire losses in the United States of America are so stupendous, relatively to those suffered in Europe, that a substantial volume on "Fire Prevention and Fire Protection" produced in that country has a reasonable chance of commercial success, and, indeed, of intrinsic success also, seeing how vast an experience an American author can command. From 1875 to 1909, the aggregate property loss from fires in the United States amounted to no less than 4,904,619,235 dols., or about twenty-two millions in excess of a thousand millions of pounds sterling, and the loss goes on increasing year by year, except in those years when an apparent drop was simply a reverting to the normal rate of increase after an abnormal rise such as that caused by the San Francisco fire in 1906, when the property loss rose to 518,611,800 dols., as compared with 165,221,650 in 1905. As it is difficult to realise the full significance of figures,

even on a comparison of periods, the author of the book under notice stimulates comprehension by showing that these thirty-five years' fire losses of nearly \$5,000,000,000 transcend by far the highest point ever reached by the United States National debt, which was \$2,733,236,173 in 1866; while an official investigation "disclosed the fact that the total cost of fires in the United States in 1907 amounted to almost one-half the cost of new buildings constructed in the country for the year. The total cost of the fires, excluding that of forest fires and marine losses, but including excess cost of fire protection due to bad construction, and excess premiums over insurance paid, amounted to over \$456,485,000, a tax on the people exceeding the total value of the gold, silver, copper, and petroleum produced in the United States in that year. The cost of building construction in forty-nine leading cities of the United States reporting a total population of less than 18,000,000, amounted, in 1907, to \$661,076,286, and the cost of building construction for the entire country in the same year is therefore conservatively estimated at 1,000,000,000 dols. Thus it will be seen that nearly one-half of all the new buildings constructed within one year is destroyed by fire."

Then, of course, the loss of life occasioned by these fires is appalling. During 1907, fires in the United States are known to have caused the death of 1,449 persons, while 5,654 were injured; but it is estimated that these official figures do not represent more than one-half of the personal calamities that actually occurred.

The total *per capita* fire loss in the United States for the five years ending with 1907 was 3.02 dols., or nearly ten times as much as the European average; and the author, in attempting to account for this enormous discrepancy, places first among four probable causes (1) the difference of view-point and in feeling of civic responsibility in the United States and in Europe, and in the consequent laws or regulations which govern the individual; second he puts (2) differences in general character of buildings outside congested areas; (3) differences in thoroughness of construction and maintenance; and (4) differences in regulations and their enforcement regarding specially hazardous materials and conditions. On these points it is observed (1) that the citizen of the United States has too much individual freedom, and should be subject to by-laws of equal stringency to those which are commonly enforced in Europe; (2) the existence of large numbers of "frame" (or wood-constructed) buildings in suburban and rural districts, the fires in these inflammable structures being twice as numerous as those in buildings of any other class; (3) American buildings are more carelessly constructed and less efficiently inspected than those of other countries, and the maintenance and inspection of fire-protection auxiliary appliances is generally very perfunctory; (4) there is comparative general recklessness with regard to such matters as lighting, heating, the care and storage of paints, highly inflammable liquids, and explosives.

It is claimed therefore, that, taking European experience as a basis for the calculation, more than forty millions sterling could be saved annually on preventable fire-waste in the United States. It is the aim of the author of the book under notice to describe the means to this end, and, so far as we are aware, he is the first who has made a serious and substantial effort to deal with the whole subject of

fire-prevention. The multiplicity of the data involved may be inferred from the headings to the six parts into which the volume has been divided, which are (I.) Fire Prevention and Fire Protection; (II.) Fire Tests and Materials; (III.) Fire-resisting Design; (IV.) Fire-resisting Construction; (V.) Special Structures and Features; (VI.) Auxiliary Equipment and Safeguards. Each of these sections contains from four to nine chapters, and every point that needs it is elucidated with a diagram, the illustrations numbering nearly 400, of very few of which can it be said positively that they are superfluous except from an advertising point of view. The book is a complete treasury of information upon a subject that has been insufficiently studied, mainly because the data have not been hitherto available within such handy compass. The fact that the book is of American origin should in this instance strongly recommend it, because of the American's unrivalled experience of fires, and of his correspondingly strenuous endeavours to put an end to that bad eminence.

"Fire Prevention and Fire Protection as Applied to Building Construction." A Handbook of Theory and Practice. By Joseph Kendall Freitag. New York: John Wiley & Sons. London: Chapman & Hall, Ltd. Pages x. + 1038, 7½ ins. by 4½ ins., price 17s. net.

### BUILDING TRADES EXHIBITION.

The tenth of the biennial Building Trades Exhibitions which the Messrs. Montgomery have organised in London since 1895 is to be formally opened at Olympia on Saturday next, April 12th, by the Right Hon. the Lord Mayor of London, Sir David Burnett, to whom a vote of thanks will be proposed by Professor Reginald Blomfield, A.R.A., president of the Royal Institute of British Architects, and seconded by the Hon. Edward Strutt, president of the Surveyors' Institution. For the luncheon following the ceremony acceptances have been received from the following, amongst others:—

Sir William Richmond, C.	E. Bateman,
K.C.B.	F.R.I.B.A. (president,
Sir George Frampton,	Birmingham Archi-
R.A.	tectural Association).
Sir Ernest George,	A.R.A. J. Alfred Gotch,
A.R.A.	F.R.I.B.A. (president,
Sir Robert Thompson.	Northants Association
Sir Frank W. Wills.	of Architects).
A. W. S. Cross,	F.R.I.B.A. Walter Lawrence, J.P.
E. Guy Dawber,	(president, London
F.R.I.B.A.	Master Builders'
George Hubbard,	Association).
F.R.I.B.A.	Alfred Conder,
John Slater, F.R.I.B.A.	F.R.I.B.A. (president,
Arthur Keen,	District Surveyors'
F.R.I.B.A.	Association).
Arnold Mitchell,	Henry Riley (presi-
F.R.I.B.A.	dent, Quantity Sur-
Sydney Perks,	veyors' Association).
F.R.I.B.A. (City Sur-	Ernest J. Brown (ex-
veyor).	president, National
H. B. Measures,	Federation).
M.V.O. F.R.I.B.A.	E. P. Wells, J.P. (pre-
(War Office).	sident, Concrete In-
Percy B. Tubbs,	stitute).
F.R.I.B.A. (president,	J. E. Hartley (presi-
Society of Archi-	dent, Institution of
teets).	Heating and Venti-
	lating Engineers).

Official visits to the exhibition have been arranged by the Architectural Association, the Institution of Municipal Engineers, the Institute of Sanitary Engineers, the Land Agents' Society, the Institute of Builders, the National Federation of Building Trades Employers of Great Britain and Ireland, the London Master Builders' Association, the Institution of Heating and Ventilating Engineers, the District Surveyors' Association, the Royal Sanitary Institute, the Society of Architects, the Surveyors' Institution, the Concrete Institute, and a number of technical schools.

Such support as this can only be obtained as the result of years of hard work



and proved merit. The brothers Montgomery have, indeed, devoted the best part of a lifetime to this work. Before they took them up, more than twenty years ago, these exhibitions were held every year. This was obviously too much, because the building trades do not move sufficiently fast to allow of marked improvements in twelve months. Moreover, the erection of typical exhibits involves considerable outlay, so that an exhibition once every two years is all-sufficient, both financially and practically. Not only, however, did the Messrs Montgomery grasp this fact from the commencement, but they also recognised that the real advantage of these exhibitions to the building trades must consist in their technical interest as distinct from their general interest. Hence all exhibits not directly appertaining to the industry are rigidly excluded. There are no sideshows, no exhibits only remotely connected with building; everything is strictly related to the trades.

That the exhibition is profitable to exhibitors themselves, we may well assume from the very extensive business which is effected in this way. It is not surprising, therefore, that every foot of space at Olympia is always to be found occupied by exhibitors who have paid full value for their space. There are no gorgeous "fill-ups," erected at the expense of the organisers, to cover blank areas that would otherwise give a very fatal impression. The Messrs. Montgomery take the hall, organise the various visits, the incidental service, the advertising, and all such necessary details, and the exhibitors do the rest.

## COMPETITIONS.

### *Hostel, University College, Exeter.*

We give on this page a plan of the site for the hostel for sixty students which is proposed to be built in connection with University College, Exeter. A summary of the conditions of the competition was given in our issue for last week.

### *First Church of Christ Scientist, Leeds.*

Mr. Walter H. Brierley, F.S.A., F.R.I.B.A., the assessor in this competition has made the following award: 1st, Mr. W. P. Schofield, Leeds; 2nd (£50), Mr. J. S. Gibson, Lon-

don; 3rd (£30), Mr. S. K. Greenslade, London. Seventeen designs were submitted in a limited competition. The committee have confirmed the assessor's award and entrusted the work to Mr. Schofield. It is proposed to exhibit all the designs.

## LIST OF COMPETITIONS OPEN.

APRIL 9.—ELEMENTARY SCHOOL, ABERTILLERY.—No premium offered. Particulars, Council Offices, Abertillery.

APRIL 16.—COTTAGE HOSPITAL, STAINES.—Particulars, Mr. H. Scott Freeman, Staines.

APRIL 18.—SECONDARY SCHOOLS, READING.—Reading Education Committee invite designs for Kendrick Boys' and Girls' Secondary Schools from architects within the borough. Premiums, 70 guineas and 30 guineas. Particulars, Education Office, Blagrove Street, Reading. Mr. Ernest Newton, A.R.A., F.R.I.B.A., is the assessor.

APRIL 19.—HIGH SCHOOL, MOTHERWELL.—Dalziel School Board invite de-

signs for a new high school. Assessor, Dr. J. J. Burnet, A.R.S.A., F.R.I.B.A. Second, third, and fourth premiums, £40, £30, and £20. Conditions to be obtained from Mr. Thomas M. Young, Clerk to the School Board of Dalziel, Motherwell. [The date has been extended from that previously announced.]

APRIL 21.—COUNCIL SCHOOL, NORTHAMPTON.—Northampton Borough Education Committee invite architects practising in the borough or county of Northampton to submit plans for a new council school. Conditions from Stewart Beattie, Secretary, Borough Education Offices, 4, St. Giles's Street, Northampton.

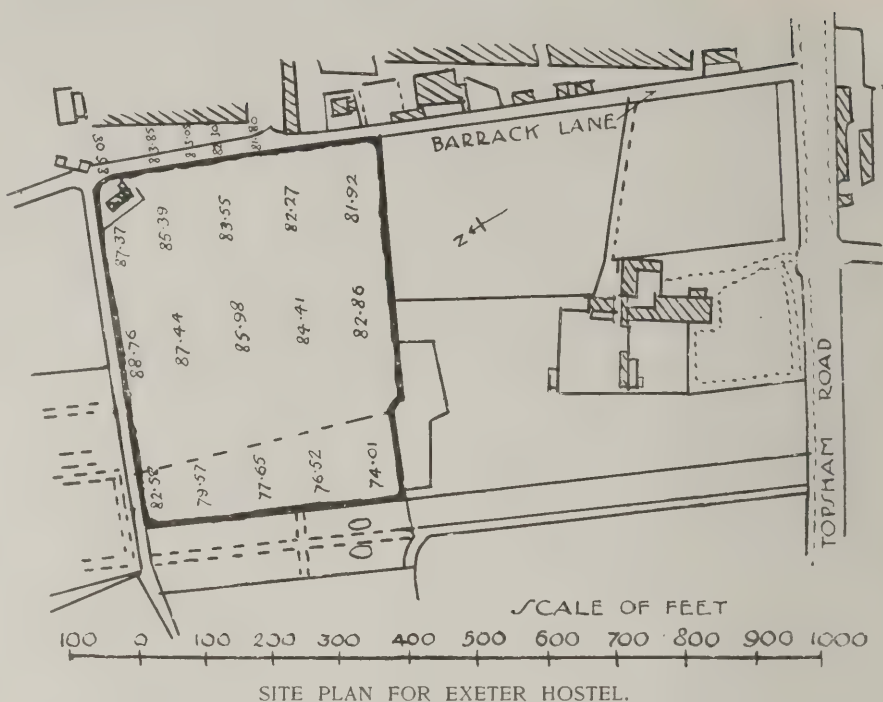
APRIL 29.—MUNICIPAL OFFICES, BARNET.—Barnet Urban District Council invite designs for new municipal offices, to be erected at a cost not exceeding £4,000. Premiums, £25, £15, and £10. Particulars from Mr. W. F. Wilkins, M.S.E., 40, High Street, Barnet. Designs to be delivered to Mr. H. W. Poole, Council Offices, 40, High Street, Barnet. [See note in our issue of February 12.]

MAY 31.—"IDEAL HOMES" EXHIBITION.—COTTAGES AND BUNGALOWS.—Designs are invited for (1) A workman's detached cottage; (2) a pair of workmen's semi-detached cottages; and (3) a bungalow for four single persons. The prize in each case is £50. Assessor, Mr. Leonard Stokes, F.R.I.B.A.

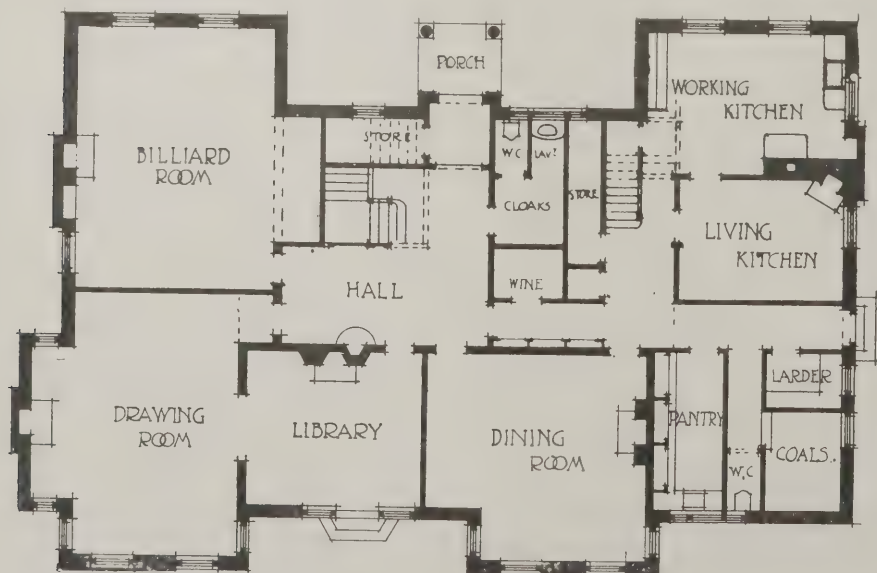
JUNE 7.—HOSTEL FOR MALE STUDENTS, EXETER.—Mr. Edwin Cooper, F.R.I.B.A., is assessor. Particulars (one guinea, returnable), H. Lloyd Parry, Town Clerk, Exeter. Summary in our issue for April 2nd; plan of site on this page.

JUNE 14.—MUNICIPAL BUILDINGS, DEVONPORT.—The Corporation invite designs for municipal buildings and a guildhall. Premiums, £350, £150, and £100. Assessor, Mr. Ernest Newton, A.R.A., F.R.I.B.A. Conditions (£2 2s., returnable) from R. J. Fittall, Town Clerk, Municipal Offices, Devonport, to whom designs are to be sent.

JUNE 19.—LAYING OUT ESTATE, NEWCASTLE.—Corporation invite designs for laying out a portion of their Walker Estate. Premiums, £50, £30, £20. Particulars (one guinea, returnable), A. M. Oliver, Town Clerk, Newcastle-on-Tyne.



SITE PLAN FOR EXETER HOSTEL.



HOUSE AT HAMPSTEAD: GROUND-FLOOR PLAN.

C. H. B. QUENNELL, F.R.I.B.A., ARCHITECT.



## MODEL ANSWERS TO R.I.B.A. EXAMINATION QUESTIONS.

## INTERMEDIATE EXAMINATION.

BY G. E. FRANCIS.

## THEORETICAL CONSTRUCTION.

Not more than seven questions were to be answered. Time allowed, 3 hours.

**Question.—(1)** A mild steel flanged girder has a section modulus of 220 ins. With a factor of safety of 4, what is the moment of resistance?

**Answer.—**S.M. = Section Modulus; M.R. = Moment of Resistance; assuming 30 tons per square inch as ultimate tensile strength of steel, with the factor of safety of 4, the safe working stress is 7.5 tons per square inch.

$$S.M. = \frac{M.R.}{F}, \text{ or } S.M. \times F = M.R.$$

$$\therefore 220 \times 7.5 = M.R. = 1,650 \text{ inch-tons.}$$

**Question.—(2)** What load evenly distributed over a 30 ft. span will the beam in question (1) safely carry?

**Answer.—**Let B.M. = Bending Moment.  
W = Distributed Load.

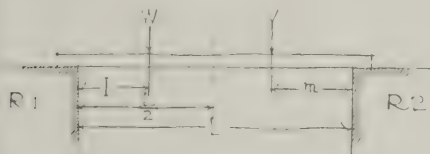
From above B.M. = M.R.  $\therefore$  B.M. = 1650

$$\text{inch-tons} = \frac{WL}{8}$$

$$\frac{WL}{8} = 1650. \therefore W \times 30 \times 12 = 1650 \times 8.$$

$$\therefore W = 36.6 \text{ tons.}$$

**Question.—(3)** A beam, of length "L," supported at the ends, has a load "W" at a distance "I" from one end, and a load "V" at a distance "m" from the other end. What is the bending moment at the centre?



**Answer.—**From diagram we get:

$$R_1 = \frac{W(L-I) + Vm}{L}$$

$\therefore$  B.M. at centre =

$$\frac{W(L-I) + Vm}{2} \times \frac{L}{2} - W\left(\frac{L}{2} - I\right)$$

$$= \frac{WL - WI + Vm}{2} - \frac{WL}{2} + \frac{WI}{2}$$

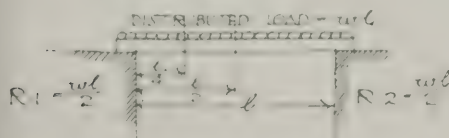
$$= \frac{WL - WI + Vm - WL + 2WI}{2}$$

$$\therefore \text{B.M.} = \frac{Vm + WI}{2}$$

**Question.—(4)** What is the bending moment formula for a beam supported at the ends with an evenly distributed load, and how is this formula obtained?

**Answer.—**Let l = the span, w = weight per foot run. Then wl = total weight on the beam and  $\frac{wl}{2}$  the reactions.

To obtain the bending moment at any point in the beam, take moments about that point (in this case the centre of the beam), calling the moments of the forces

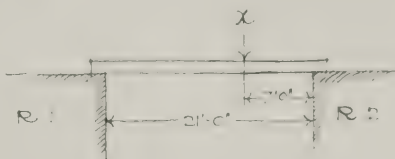


tending to cause rotation in the direction of the hands of a watch positive, those in the opposite direction negative.

Thus from the diagram we get:

$$\left(\frac{wl}{2} \times \frac{l}{2}\right) - \left(\frac{wl}{2} \times \frac{l}{4}\right) = \frac{wl^2}{4} - \frac{wl^2}{8} = \frac{wl^2}{8} = \text{B.M.}$$

**Question.—(5)** A wooden beam, 18 inches by 6 inches, bridges an opening 21 feet wide. What load concentrated 7 feet from one end will the beam safely carry? Working stress 9 cwt. per square inch.



**Answer.—**Let f = safe working stress = 9 cwt. per sq. inch. Let b = breadth of beam, and d = depth of beam.

From diagram:—

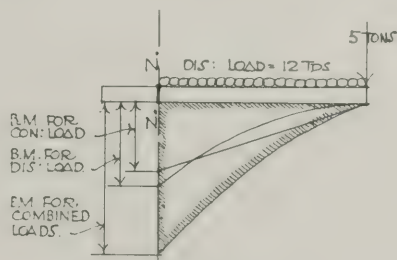
$$R_2 = \frac{14}{21} \times x, \therefore \text{B.M.} = \frac{14}{21} \times \frac{x}{1} \times \frac{7}{1}$$

$$\text{B.M.} = \frac{fbd^2}{6} = \frac{14 \times x \times 7 \times 12}{21} = \frac{9 \times 6 \times 18 \times 18}{6} = 14 \times x \times 7 \times 12 \times 6$$

$$= 21 \times 9 \times 6 \times 18 \times 18 \therefore \text{Safe load} = 52.07 \text{ cwts.}$$

**Question.—(6)** A cantilever 10 feet long supports a load of 5 tons concentrated at the free end, and an evenly distributed load of 12 tons. What is the maximum bending moment, and where does it occur?

Give the dimensions of a mild steel girder suitable to carry these loads.



**Answer.—**From diagram:—

$$\text{B.M. for concentrated load} \times WL = 10 \times 5 = 50 \text{ foot-tons.}$$

$$\text{B.M. for distributed load} = \frac{WL}{2} = \frac{10 \times 12}{2} = 60 \text{ foot-tons.}$$

$$\therefore \text{Total B.M.} = 110 \text{ foot-tons} = 1,320 \text{ inch-tons.}$$

Point of max. B.M. is at point of support (see line Z—Z on diagram).

Assume a 20"  $\times$  7 $\frac{1}{2}$ " R.S.J. as being a possible suitable girder with a flange area of 7 square inches.

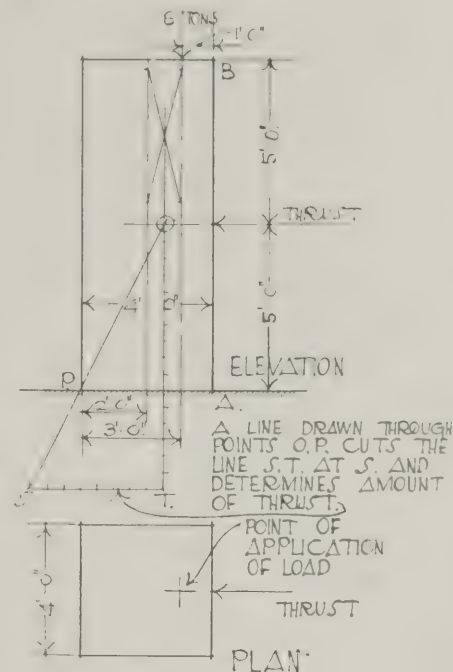
$$\therefore \text{M.R. or B.M.} = \text{Depth of joist} \times \text{area of one flange} \times \text{safe working stress.}$$

$$\therefore 1,320 = 20 \times 7 \times 7.5.$$

$\therefore 1,320 = 1,050.$  From this it is seen that a 20"  $\times$  7 $\frac{1}{2}$ " joist is not strong enough, so a 24"  $\times$  7 $\frac{1}{2}$ " would be necessary.

**Question.—(7)** A pier of concrete, weigh-

ing 1 cwt. per cubic foot, is 4 feet square and 10 feet high, and carries a load of 8 tons concentrated 1 foot from one edge (see diagram). What horizontal thrust applied halfway up the side AB will just cause the pier to overturn?



**Answer.—**The weight of the pier =  $\frac{4 \times 4 \times 10}{20} = 8$  tons. From diagram we get

$$8 \times 2 + 8 \times 3 = 5 \times x$$

$$16 + 24 = 5x$$

$$x = 8 \text{ tons.}$$

**Question.—(8)** Make a diagram of the bending moments in a beam 20 feet long, supported at both ends and carrying a distributed load of 10 tons and two other loads each of 10 tons, one 5 feet and one 15 feet from the right-hand end of the beam.

$$\text{Max. B.M. for distributed load} = \frac{WL}{8}$$

$$= \frac{10 \times 20}{8} = 25 \text{ foot-tons.}$$

From diagram on next page:—

$R_1$  for concentrated loads

$$= \frac{10 \times 5 + 15 \times 10}{20} = 10 \text{ tons.}$$

$\therefore$  Max. B.M. for concentrated load

$$= \frac{20}{2} \times \frac{5}{1} = 50 \text{ foot-tons (the latter B.M. occurs at all points between the two loads). (See diagram.)}$$

**Question.—(9)** Make a diagram of the shearing stresses in the beam described in question (8).

For distributed load the maximum shear

$$\text{at points of support} = \frac{W}{2} = \frac{10}{2} = 5 \text{ tons.}$$

For concentrated loads the maximum shear between load and nearer support =

$$\frac{W}{2} = \frac{20}{2} = 10 \text{ tons. (See diagram on next page.)}$$

## Publisher's Notices.

Offices: ADVERTISEMENT, EDITORIAL, AND COUNTING HOUSE—Caxton House, Westminster, PUBLISHING—6, Great New Street, Fetter Lane, E.C.

Telegraphic Address: "Buildable, London."  
Telephones: ADVERTISEMENT, EDITORIAL, AND COUNTING HOUSE—817 Gerrard. PUBLISHING—2200 Holborn (six lines).

Date of Publication.—THE ARCHITECTS' AND BUILDERS' JOURNAL is published every Wednesday, price 2d.

The Subscription Rates per annum are as follows:—  
At all newsagents and bookstalls... 8 8  
By post in the United Kingdom ... 10 10  
By post to Canada ..... 13 0  
By post elsewhere abroad ..... 19 6

Subscribers can have their volumes bound complete with Index, in cloth cases, at a cost of 3s. 6d. each, Carriage extra. A cheaper binding can be supplied at 2s. 6d., Carriage extra.

Advertisements for the current week, alterations to serial advertisements, etc., must reach the office not later than first post on Saturday.

Rates for serial Advertisements, Special position, etc., sent upon application.

THE ARCHITECTURAL REVIEW. Monthly. Price 1s.

THE PRACTICAL EXEMPLAR OF ARCHITECTURE. Selected by MERVYN E. MACARTNEY, B.A., F.S.A., F.R.I.B.A. The scheme of the Exemplar is to give an absolute and correct reproduction of fine details from the old and new Masterpieces of Architectural Design and Construction by means of Photographs and Measured Drawings. Four portfolios, comprising over 450 Plates. Price 15s. each. Post free inland.

SPECIFICATION: The Indispensable Standard Reference Book provides all the information that Architects, Surveyors, and Engineers may require when preparing drawings, writing specifications, or compiling bills of quantities, with sample specification clauses. Invaluable to owners of land, building sites, country estates, and all connected with house property. No. 15 1913. Price 3s. 6d. nett, postage 6d. extra inland.

THE LIVERPOOL ARCHITECTURAL SKETCH BOOK. The Liverpool Architectural Sketch Book affords striking evidence of the forward movement in Architectural Education. The drawings are skilfully executed and have been fully reproduced on heavy art paper. Vol. I., 2s. 6d., Vol. II., 5s. nett, Vol. III., 2s. 6d. nett. Post free inland.

RECENT ENGLISH DOMESTIC ARCHITECTURE. Edited by MERVYN E. MACARTNEY, B.A., F.S.A., F.R.I.B.A. These Special Issues give a magnificent collection of the work of the best architects of the day, and are of the greatest value, not only to architects and builders, but also to those having estates to develop and others who are interested in house-building. 3 Vols. Price 7s. 6d. each nett. Post free inland.

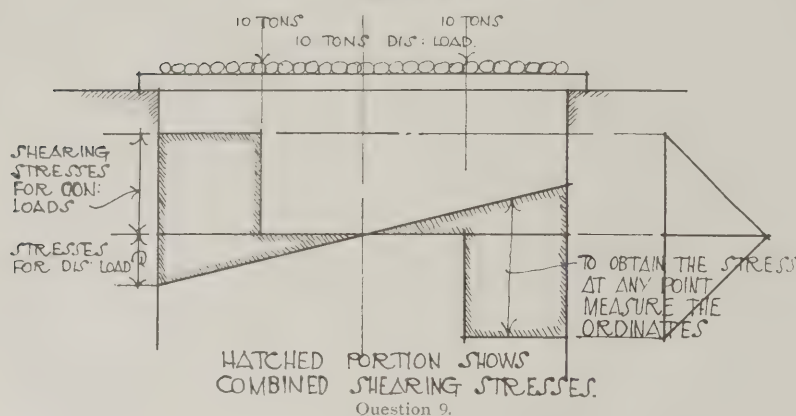
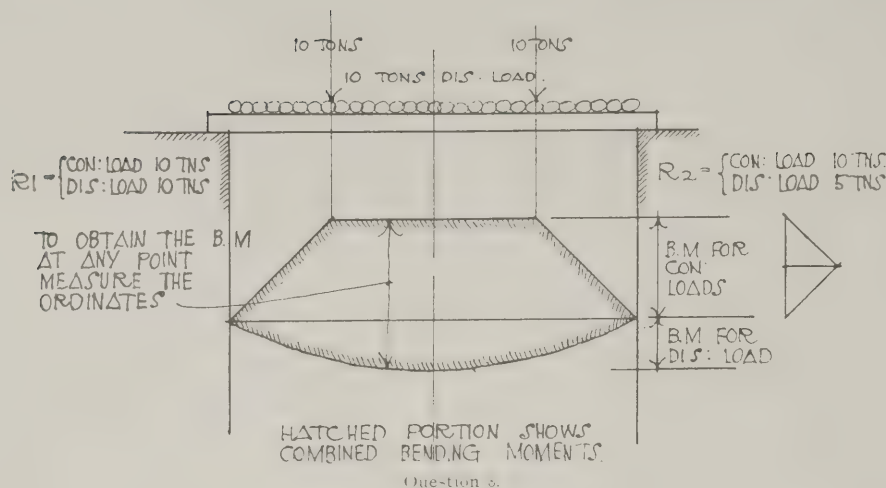
PRACTICAL NOTES FOR ARCHITECTURAL DRAFTSMEN. By A. W. S. CROSS, M.A., F.R.I.B.A., and A. E. MUNBY, M.A., A.R.I.B.A. Gives in most convenient form for use on the drawing-board examples with concise rules, explanations, and dimensions for preparing Designs, Perspectives, and working Drawings for Classical Architecture with rapidity and precision. Price 15s. nett, post free inland, including Portfolio.

SHORT CHRONOLOGICAL HISTORY OF BRITISH ARCHITECTURE. This publication presents the whole field of British Architecture as a coup d'œil, and enables the several periods to be compared one with another, and also to be examined individually. The letterpress sets forth in brief order the entire chronological development, following the succeeding phases of architectural art, and giving those essential facts which are necessary to a proper estimate of the whole. Price 10s. nett, post free inland.

STANDARD DETAILS. 25 large Plates (24 by 17½ in.), forming with Portfolio Vol. I. of "Standard Examples of Architectural Details." The object of this publication is to give examples of architectural details which are representative of their several periods. The drawings have been executed with great care, and are reproduced to such a size that every detail of the work can be closely studied. Included on the plates are photographic reproductions. In this way each example is completely represented. In the present portfolio the plates include typical examples of interior and exterior details—chiefly of the period of the English Renaissance. Price 15s. nett, post free inland.

ENGLISH ECCLESIASTICAL ARCHITECTURE Never before has there been brought together a representative series of photographs of the recent work of English church architects. Examples of the best modern church work are included, and the volume is fully representative of what is being done by the chief architects of the present day, including buildings of Renaissance character as well as Gothic. Price 10s. 6d. nett, post free inland.

Orders should be sent to The Manager, TECHNICAL JOURNALS, Ltd., Caxton House, Westminster, S.W.



R.I.B.A. INTERMEDIATE EXAMINATION.

## OBITUARY.

*Mr. Joseph Burnett.*

Mr. Joseph Burnett, builder and contractor, who has died at Broad Ends, Birtley, at the age of seventy-six, went to Birtley from Egton Bridge, Yorkshire, in the 'fifties of last century, and in 1866 commenced business as a builder and contractor, carrying out some large undertakings, including the building at Gallow Hill, which took several years. He had been assisted in his business during latter years by his two sons, Messrs. John and Edward Burnett.

*Mr. W. A. Ingram.*

Mr. William Ayerst Ingram, whose death at Falmouth is announced, was the president of the Royal British Colonial Society of Artists, which he helped to form in 1885, when it was started under the name of the Anglo-Australian Society of Artists. The third son of the Rev. G. S. Ingram, of Glasgow, born in 1855. Mr. Ingram was originally intended for business, but later he studied art under the late John Steeple and A. W. Weedon, R.I. He became a member of the Royal Society of British Artists in 1883, and of the Royal Institute of Painters in Water-Colours and the Royal Institute of Oil Painters a few years ago. Mr. Ingram had travelled much, and the results of his journeys were seen in two exhibitions, one at the Dowdeswell Galleries in 1898 entitled "A P. and O. Voyage," and the other, called "Waters of the Old and New World," at the Fine Art Society's galleries nine years later. His work is represented in the Guildhall collection and in several public galleries in Australia and New Zealand.

## BATH AND PORTLAND STONE FIRMS.

The report of the Bath and Portland Stone Firms, Ltd., for the half-year to December 31st last, presented at the meeting at Bath on March 28th, states that after payment of interest on the Debenture stock, and providing for the remuneration of the directors and auditor, the account for the year stands as follows: Net profit for the half-year ended June 30th, £55, net profit for the half-year ended December 31st, £1,977, balance brought forward from December 31st, 1911, £2,124, making a total amount available for distribution of £4,156. The directors recommend a dividend for the half-year ended December 31st, 1912, at the rate of 3 per cent. per annum. This will amount to £3,406, and leave a balance of undivided profit of £750, which the directors recommend shall be carried forward. The colliery and dock strikes which prevailed during the first six months practically destroyed the whole of the working profit for that period, and although some recovery took place in the second half-year, the after effects of the previous troubles were still felt, and those, in conjunction with the keen competition in prices, and the continued depression in the building trade, have delayed to a certain extent the hoped-for improvement. The amount set aside out of the half-year's profits as a reserve against depreciation is £2,639, making the total amount of provision for depreciation £134,807, and the plant and machinery have been fully and efficiently maintained.

We note that Mr. T. Sturge Cotterell, I.P., general manager of the Bath and Portland Stone Firms, Ltd., has been elected president of the London Association of Master Masons for the current year.



THE  
ARCHITECTS' & BUILDERS'  
JOURNAL.

Wednesday, April 16, 1913.

Volume XXXVII. No. 953.

No. 29.



(From Piranesi.)



TREASURY BUILDING, LORD EDWARD STREET, DUBLIN. THOMAS IVORY, ARCHITECT. (C. 1780.)

The recent competition for new municipal offices in Dublin turned largely on whether this fine building (originally a private house) should be retained or not; the matter having been left for competitors to settle. The successful architects (Messrs. McDonnell and Reid) decided to retain the building.



# THE ARCHITECTS' & BUILDERS' JOURNAL.

APRIL 16, 1913.

CAXTON HOUSE, WESTMINSTER.

VOLUME 37. No. 953.

## The Problem of Science and Art.

THE great organs of the daily Press—we are not sure whether their “organic” qualities are musical or merely digestive—remind us that militancy is in the air. We have already put away the old idea which connects warlike practices with masculine attire, now that our wives and daughters join battle without compunction. Thus war is justified of her children, and from a feminine impersonation she becomes incarnate in members of her own sex. It is perhaps in harmony with the essential spirit of things that men have given a feminine character to all abstract qualities, whether they be gracious or sinister, desirable or repellant. Like their sisters in the flesh, some of these queenly abstractions have laid aside their native habits of gentleness and have rashly assumed the sword of strife. Such an one, we take it, is Science, who of old pursued her mystical quest after knowledge without offence, but now leagues herself with the disagreeable forces which would destroy our peace. She has put many an old-fashioned and well-tried idea to flight and has stood up in single-handed combat with institutions of respectable antiquity until they have been glad to take refuge in temporary obscurity. Twenty-five years ago Science was breaking a lance with her old friend Theology, but we have lived to see a partial reconciliation take place between these wary antagonists; yet her thirst for battle is by no means exhausted. Indeed, she is the more free to lay about her in other directions, and it will be well to beware in time. We who are the custodians of an ancient art are likely to be her next victims, and we must not be too confident of escaping lightly. The governing powers, with that official prudence which characterises them, have apparently long ago foreseen the peril, and, in order to put off the evil day, endeavoured to marry Science and Art at that temple in South Kensington which stands dedicate in the names of the royal patrons of the Great Exhibition. Whom the Government have joined together, who shall put asunder? Yet these partners in life live restlessly together, for Art and Science revere not the same laws, and they look stedfastly towards a different goal.

The worst of it is, Science will patronise people to whom Art most distinctly objects, and she supports them in all their little quarrels, and helps them to defeat the best-laid schemes of the artist. Time was when Science attired herself in all the garments of knowledge and wisdom, and even admitted that she was one flesh and blood with Art, who in turn welcomed the relationship. Thomas Fuller, the divine, in his droll pen-pictures of the Holy State, describes under the general artist one who neither paints nor carves, but who is versed in all the liberal sciences. But Science has descended from her ancient throne and allies herself with Utility, and her daily conquests under the new alliance are not to be disregarded. Even so gifted a writer on architectural idealism as Mr. L. March Phillips has surrendered an outpost, for in a recent article in the Press he has boldly praised “utilitarian architecture,” and has even suggested that a close application to practical details will lead willy

nilly to the beauties of design. Such an hypothesis would be abundantly proved if the votaries of Science had their old-time skill and cunning, but how can it apply to these days of unimaginative commercialism? Utility deviseth her railway stations for the desolation of fair places, her lamp standards for the disfigurement of streets, or the copings of her party walls for the defilement of rows of unoffending cottages; and she feels no shame because of her alliance with Science and the world of modern progress!

The root of the trouble is that Science—if we may still impersonate the modern spirit under its most popular name—has lost her former sensitiveness to beauty. And the commercially successful man, who has often prevented in himself the development of those human qualities of idealism and imagination, assumes by some sort of lamentable accident the tasteless preferences and predilections which are still so evident to-day. To take one striking example, why should the English home have become synonymous with the detached or semi-detached villa? The detachment of small houses is the despair of the architect. Given a street to be built upon on both sides, each side divided into small plots with the requirement of a draughty passage between every other house, or you have a well-nigh insoluble enigma for the artist. The dispersal of the units forbids all grouping, the isolation of each building destroys every attempt at composition. The simpler the house the more monotonous and visibly disintegrated is the whole; but vary the designs and the effect is confusion. In the eighteenth century every one built in rows, where the houses were not large enough to stand in a spacious territory of their own. Then the architect had a chance; he could compose, he could give proportion and dignity to his design; to-day the ground is cut away from him at the very start. Even the improved equipment and education of the modern architect, and his revived interest in all the beautiful detail of the various phases of the Renaissance, are powerless to help him. The design of the small isolated or semi-detached villa is inevitably commonplace or uncomfortable. There have of course been degrees of success in the treatment of this difficult subject, but compared with really interesting and fine work these attempts are consciously far behind any true attainment.

Now even a utilitarian argument can be found for the association of houses in blocks. Buildings are less exposed to the weather, they are stronger, they are kept in better condition. Privacy is not any less violated; in fact, the dweller in a row is scarcely conscious, as he looks out of his windows, that his neighbours are close by. And what opportunities it would give to the architect! Take a large site enclosed by four streets, and imagine in place of separate houses with their iron railings, their stone-dressed bay windows, the capitals of their rude pilasters carved in Bath stone, and their stained-glass fanlights—imagine a fine quadranglar building, with entrance archway, doorways in a spacious courtyard laid out as a garden, with windows on the street and on the enclosed ground.



What an opportunity for the design of street architecture, and for making the sheltered quadrangle a veritable thing of beauty. Yet how long would it be before one could overcome the prejudice in favour of the backyard and the draughty passage? Science has fostered in men's minds a belief in the "improved" methods of the present day, and this belief, dwelling side by side with an ignorance and non-appreciation of what is beautiful, sustains and supports all such prejudices. Let us look to it before her triumph is too firmly established and all our Elysian fields are turned into a suburban desert with paths of asphalt or cinders.

W. H. G.

#### The Suburban House Competition.

WHEN going to press with our issue for March 19th we announced that we had received nearly a hundred designs in our competition for plans and section of a semi-detached residence suited to the needs of a small suburban household, and we stated that the awards would probably be given in our issue for April 9th. But the altogether unexpected quantity of drawings which was showered upon us during the last two days of the competition quite upset our calculations; there being, in the end, more than 400 designs to be dealt with. The consideration of these, each in detail, necessarily involves a great amount of time, the task being rendered still more onerous by the additional work entailed in connection with the Building Trades Exhibition, while the temporary indisposition of the outside architect who is assisting the Editors in the adjudication of the designs has been the cause of a further delay. We can now say definitely, however, that the results will be published in our issue for April 30th, when reproductions of a selection of the drawings will be included.

#### The Last of Old Clapham.

ALL who are able to appreciate the qualities of a good work will have learned with regret that the familiar old houses on the north side of Clapham Common are threatened with demolition, in order that a new Westminster Hospital may rise on the site. The destruction of the Clapham that was once a secluded residential district and its replacement by the raucous medley of red-brick shops and villas that constitutes the Clapham of to-day has gone on apace with the spread of London, but one cannot the less regret so disastrous a result; and in the case of these houses on the north side of the Common there is a certain added poignancy by reason of the fact that they are practically the last of the old place. To Wren is ascribed their design, but whether that be so or not is doubtful. There is, however, no question that the houses are of his period, and, as such, have often been the subjects of careful measured drawings; their quiet brick fronts, homely doorways, and graceful ironwork having been a great attraction to the architect and the artist. Within, their panelled rooms and sturdy staircases recall the days when Clapham was helping to make history. In all, there are fourteen of these houses. Their demolition will be a great loss, though we cannot see any hope of such a loss being averted.

#### Richmond Bridge.

WHAT precisely is going to be done in the matter of Richmond Bridge is at present by no means clear, but it is a relief to know that the protracted discussion upon it is certainly entering a more practical phase. The chairman of the Highways Committee of the Surrey County Council has pledged his committee to consideration of the question, and Richmond Town Council has passed a resolution for a joint conference of the authorities interested. It is stated that the chairman of the Highways Committee, who is an engineer, believes it impossible to widen the

present bridge without destroying it, and it is further said that the Bridge Commissioners advise the impossibility of improving the gradients. The bridge is not therefore necessarily doomed to destruction. It could be preserved as a footbridge if the authorities were only to decide upon what is the only proper place for a new bridge—at the foot of the hill.

#### By-law Absurdities.

SHEFFIELD will probably have the honour of bringing the by-law problem to a clear and definite issue. New by-laws have been framed by the Sheffield Corporation, and the architects and builders upon whom their effect is imposed do not like them. In particular, the Sheffield Society of Architects has lodged a vigorous protest against by-law 68, which demands the provision of open space at the rear of buildings—"a building 15 ft. high must have a space at the back of 15 ft. across, and if 25 ft. high a 20-ft. space, and if 35 ft. high a 25-ft. space." Architects and builders alike contend that the provision of so large an area of open space on the ground-level—or, indeed, of more open space at this level than is required for drainage purposes—is detrimental to the progress and development of the city, with respect to whose business streets it is unreasonable, and serves no useful purpose. It will, on the contrary, do a considerable amount of mischief. It will render impossible the erection of tall buildings in the business quarters, where rear space cannot be got. The Sheffield Society of Architects think, indeed, that "as the value of town lands lies almost entirely on the ground floor and basement levels, it will certainly result in many instances in the erection of single-storey buildings in main streets"—a preposterous consummation, but not more absurd than the effect of another by-law which forbids the construction of skylights. For these vagaries, we understand, the corporation is not wholly to blame. Representations by practical builders were met by the local authority in a conciliatory spirit; but the Local Government Board would allow no relaxation, thereby demonstrating once again the inability of a central body to throw off its own cast-iron traditions and address itself to a rational consideration of practical needs. Sheffield, persevering in its opposition to by-law tyranny, may secure a victory that will be more than temporary and local. It is time that the whole question of by-laws was thoroughly overhauled.

#### The Admiralty Arch.

IN view of the very practical manner in which the expert committee dealt with the question of Regent Street Quadrant, we heartily support Lord Alexander Thynne in his suggestion that a similar committee should be appointed to decide the interminable problem of the Admiralty Arch, that opens into Charing Cross from the Mall. As he says, what is done now is going to have a very serious result on the future appearance of Charing Cross, and as the Government have indicated their willingness to do something in the matter, the findings of an official committee would be a very good means of both determining the best thing to be done and of getting a Government grant to clear the necessary space in front of the building. It should never be forgotten, however, that the whole of this trouble has arisen from the short-sighted policy which was adopted at the time of the competition for the Victoria Memorial scheme. The opening into Charing Cross was not then taken properly into account, the scheme being more concerned with its effect in front of Buckingham Palace and in the Mall. Now, with Sir Aston Webb's building shut in by some begrimed blocks of the nineteenth century, we can see very plainly what a mistake this was—a mistake which, had it not been for the present agitation, would have been perpetuated.



## A NEW TYPE OF SCHOOL.

WITH changing ideas as to the best methods of promoting education, and the best conditions under which instruction may be given, school planning is necessarily undergoing considerable alteration. It is of value to show any new development that is being made, and we think, therefore, that great interest will be taken in the accompanying illustrations of the school accommodating 400 children which has just been completed at Loose, near Maidstone, from designs prepared by Mr. W. H. Robinson, M.S.A., architect to the Kent Education Committee.

This school embodies some of the latest developments in the planning of elementary schools in this county, and is also a notable departure from the old regulations of school buildings in the adoption of 11 in. hollow walls instead of 14 in. solid—the minimum thickness previously required by the Board of Education. Economy in construction was a primary consideration in the present case, and the method adopted has contributed largely to the result.

In planning the school a governing idea was to secure natural cross-ventilation to all classrooms and to form a sheltered space for occasional open-air teaching and drilling exercises. This is provided by grouping the classrooms so as to form a quadrangle or

open court. The further advantages of this arrangement are that strict privacy is obtained for out-of-door lessons, the classes are sheltered from the wind in all directions, and the use of this open space will not disturb other classes—which was one of the chief defects of the old central-hall type of school.

A covered-way or verandah connected with the cloak-rooms extends on three sides of the open court, covering the approach to the classrooms. This covered-way affords sufficient protection for the children in inclement weather during playtime, and is recognised by the Board of Education as taking the place of the usual play-sheds. As will be noted, it has practically a flat roof, in order to allow for cross-ventilating windows in the classrooms.

The classrooms are arranged in separate departments for 150 girls, 150 boys, and 100 infants, and the rooms in each section are divided by glazed folding partitions. By this arrangement the rooms are easily converted into one large room for teaching combined classes, and for assembly purposes. The lighting and ventilation of the rooms have received special consideration. All the classroom windows have south, east, and west aspects, and thereby obtain the maximum amount of sunshine; in which connection it may



Views in Courtyard.



Exterior Views.

be stated that by cross-lighting, and by the provision of an open court, the sunlight reaches every room in the school on all sides.

The main windows have double-hung sashes, and are fitted with metal hopper inlet ventilators to the inside of bottom sashes, the ventilating casements near the ceiling being fitted with metal opening gear, so that the admission of fresh air and the entire ventilation are under complete control.

It is, of course, of the greatest importance that classrooms shall be well lighted and ventilated; this, indeed, is essential if schools are to be rid of the infectious germs that lurk in ill-lighted corners and are propagated in a vitiated atmosphere.

The classroom doors open directly out to the verandah and open court, and in order to avoid any possibility of draughts a small vestibule is provided, with double doors opening outwards to each doorway, as shown in the photograph which is reproduced on this page.

The latest requirements of elementary school curricula are met by the provision of a room for teaching

treatment economy is similarly studied. The floors are covered with deal blocks, and the skirtings are formed with three courses of glazed bricks, above which is a dado of Keene's cement painted and capped by a moulding. The general wall surfaces are finished in "Sirapite" plaster, distempered a light green colour; all rooms being provided with a picture rail. The whole of the internal woodwork is finished in white enamel paint.

The work was carried out by Messrs. Clarke and Epps, of Maidstone, at a cost of £4,296—about £10 14s. 9½d. per scholar.

## ARCHITECTURAL DRAWINGS.

REPRODUCTIONS of fine architectural drawings and etchings have been a feature of "The Architectural Review" in its new form, and the issue for April, just published, continues the series; a number of delightful pencil drawings by Mr. Frank L.



NEW SCHOOL, LOOSE: VIEW OF CLASSROOMS SHOWING ARRANGEMENT OF DOORS.

combined domestic subjects and handicraft, and a special room is set apart for medical inspection of the children.

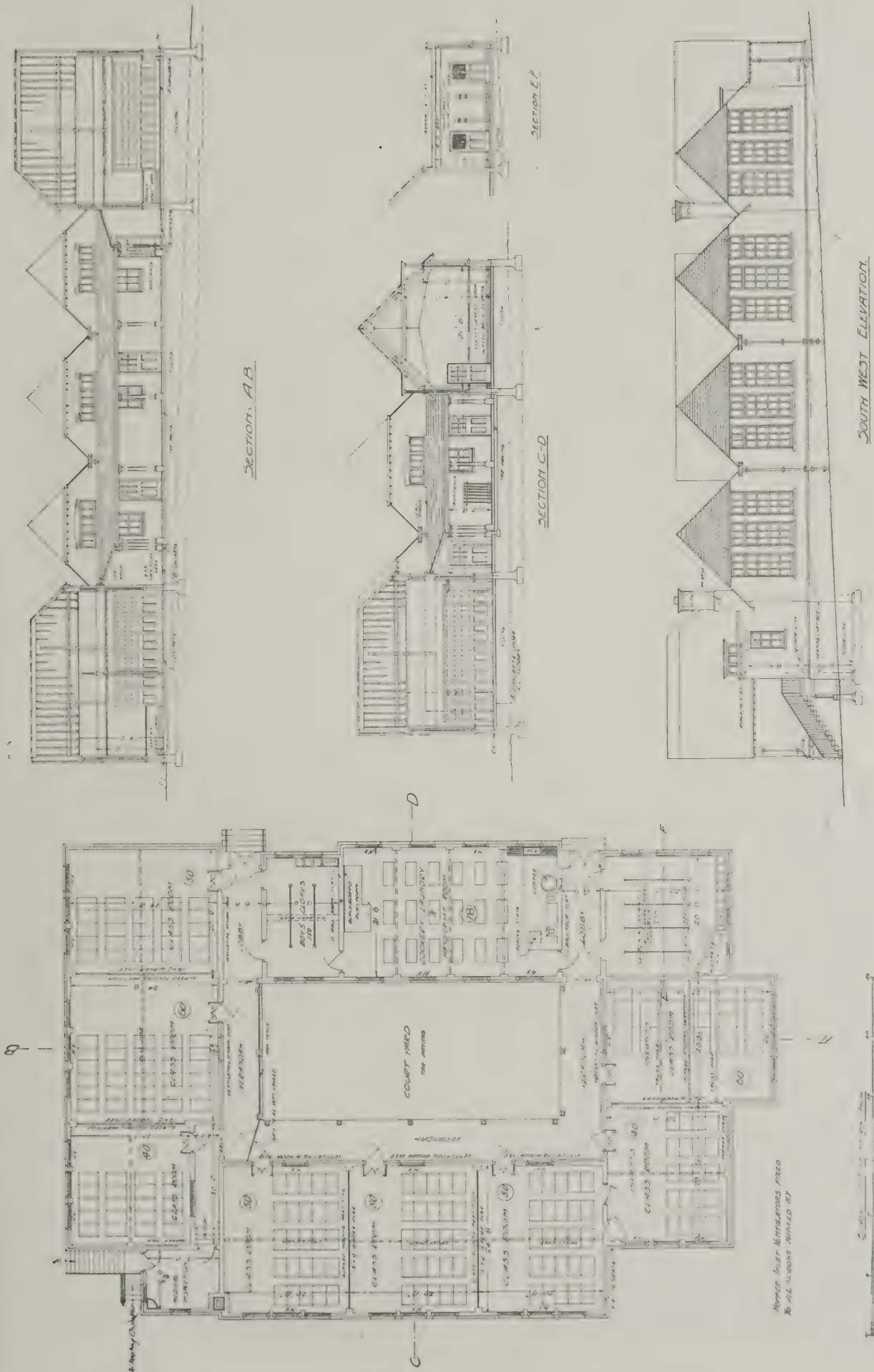
The building is heated throughout by a low-pressure hot-water installation of pipes and radiators. In the cloakrooms the hat and cloak rails are connected with the hot-water system, by which means in wet weather the children's cloaks are dried.

The site comprises an area of about an acre, of which about one rood is set apart for school gardens. The playgrounds are partly tar paved, with a small portion gravelled.

For the sake of economy, the external treatment is simple. The walls are of red sand-faced bricks of local manufacture, and the gables and roofs covered with hand-made old Kentish tiles. In the internal

Emanuel being shown in that issue. The subjects of the drawings are chiefly in Holland and Belgium, but the treatment displays the same qualities which have made Mr. Emanuel's many studies of "Disappearing London" so captivating. Such illustrations are a pleasant relief from photographs, as they possess an artistic value which the camera can never achieve. There are, however, some splendid photographic plates in the issue. Those, for example, of the water garden at Buscot Park, near Faringdon—the seat of Sir Alexander Henderson—are full of interest, and show the finest results that are possible by means of photography. Other fine plates illustrate sculpture by Mr. Crosland McClure, the New Theatre at Manchester, and Messrs. Burberrys' new building in the Haymarket.





NEW SCHOOL AT LOOSE, NEAR MAIDSTONE, FOR 400 CHILDREN. W. H. ROBINSON, ARCHITECT.

## THE CONSTRUCTION AND STONE-CUTTING OF A PENDENTIVE DOME.

BY JAMES S. BOYD.

THE range of small pendentive domes covering the loggia which flanks the Galeries Mollien and Denon in that section of the Louvre buildings erected by the architects Visconti and Lefuel in 1852-57, forms a suitable basis for the study of the construction of pendentive domes similar in design, and the following article is intended to be of service to architects in designing such work, to foremen masons in making their full-size drawings for mould-cutting, and to the stonecutter in performing the actual process of cutting the stones.

The scale drawings reproduced as Figs. 1 and 2, although varied slightly in regard to detail and dimensions, are based upon measured sketches made on the spot by the author in the course of a personal study of the above-mentioned buildings.

A pendentive dome is a spherical dome cut by four or more vertical planes equidistant from the vertical axis of the hemisphere (see Fig. 3). The vertical planes in the example shown in Figs. 1 and 2 contain the faces of the four arches which stand over the square bay. The longitudinal arches have each a moulded archivolt, while the transverse arches show a plain margin 6 in. wide. The arch-stones in all four arches are bonded with the spherical courses of the pendentives, each arch-stone having a portion of the pendentive worked upon it. The longitudinal arch on the wall side of the bay covers a window opening, the head of which forms a lunette intersection with a cylindrical vault.

For the actual making of the stonecutter's moulds not more than a quarter plan and a section of the compartment need be drawn full size on the drawing floor, but in order to study the jointing of the masonry, and

the general construction, a plan with three sections has been made to a small scale, while for the projection of the necessary moulds a section and a quarter plan have been drawn to twice the scale.

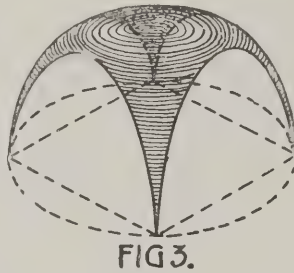
*Jointing and Geometrical Nature of the Stone Surfaces.*

In the several stones forming the pendentives different kinds of joints are met with. The inclined bed-joints are conical, their surfaces forming zones of inverted cones, whose apices coincide with the centre of the sphere. The vertical joints of the spherical courses of ashlar are plane surfaces, standing in vertical planes, which pass through the vertical axis of the sphere (see radial joints on plan). The radiating joints or beds of the arch-stones are plane surfaces, which lie in inclined planes passing through the horizontal axis of the sphere. As these inclined planes are normal to the internal spherical surface, their intersections with the spherical surface, clear of the archivolt, will be arcs of a circle of the same radius as the sphere. The arch-stones immediately above the impost have part of their surface worked as level beds, so that they

may build in with the masonry of the abutments.

*The Small-scale Drawings.*

Begin by drawing the axial lines of the bay, and set out the square of 12 ft. side on plan. Half the diagonal of this square will be the radius for the inner spherical surface, which may now be drawn in section. On plan add the width of the arch soffits, filling in the detail section of archivolt, panel moulding, etc. On the sections, AA and BB, divide the spherical section into suitable courses with widths from 13 to 16 in. Now space out the soffit of the arch (Section AA) into a



General View.



View looking up.

LOGGIA FLANKING THE GALERIES MOLLIEEN AND DENON AT THE LOUVRE, PARIS.



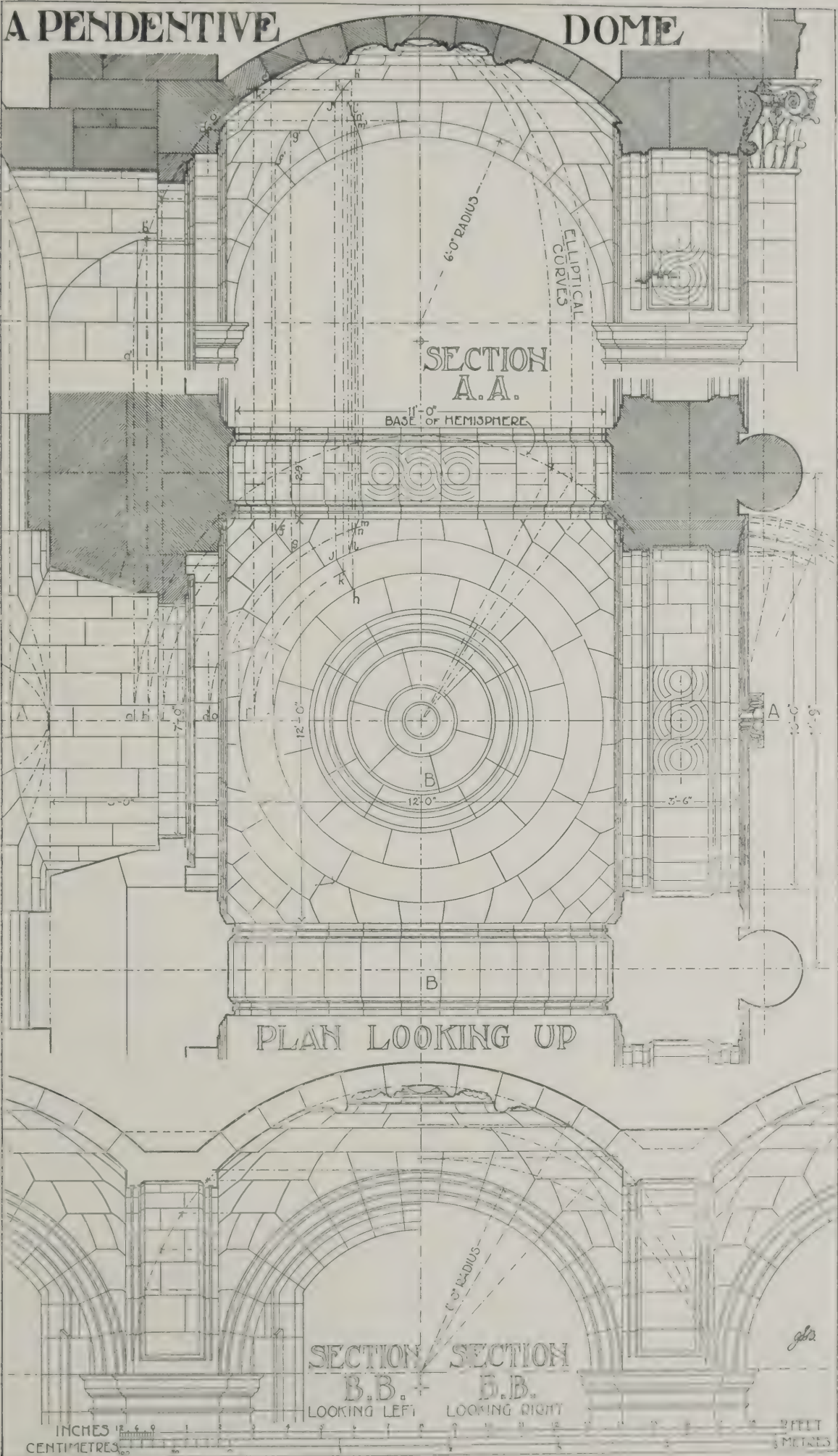


Fig. 1.

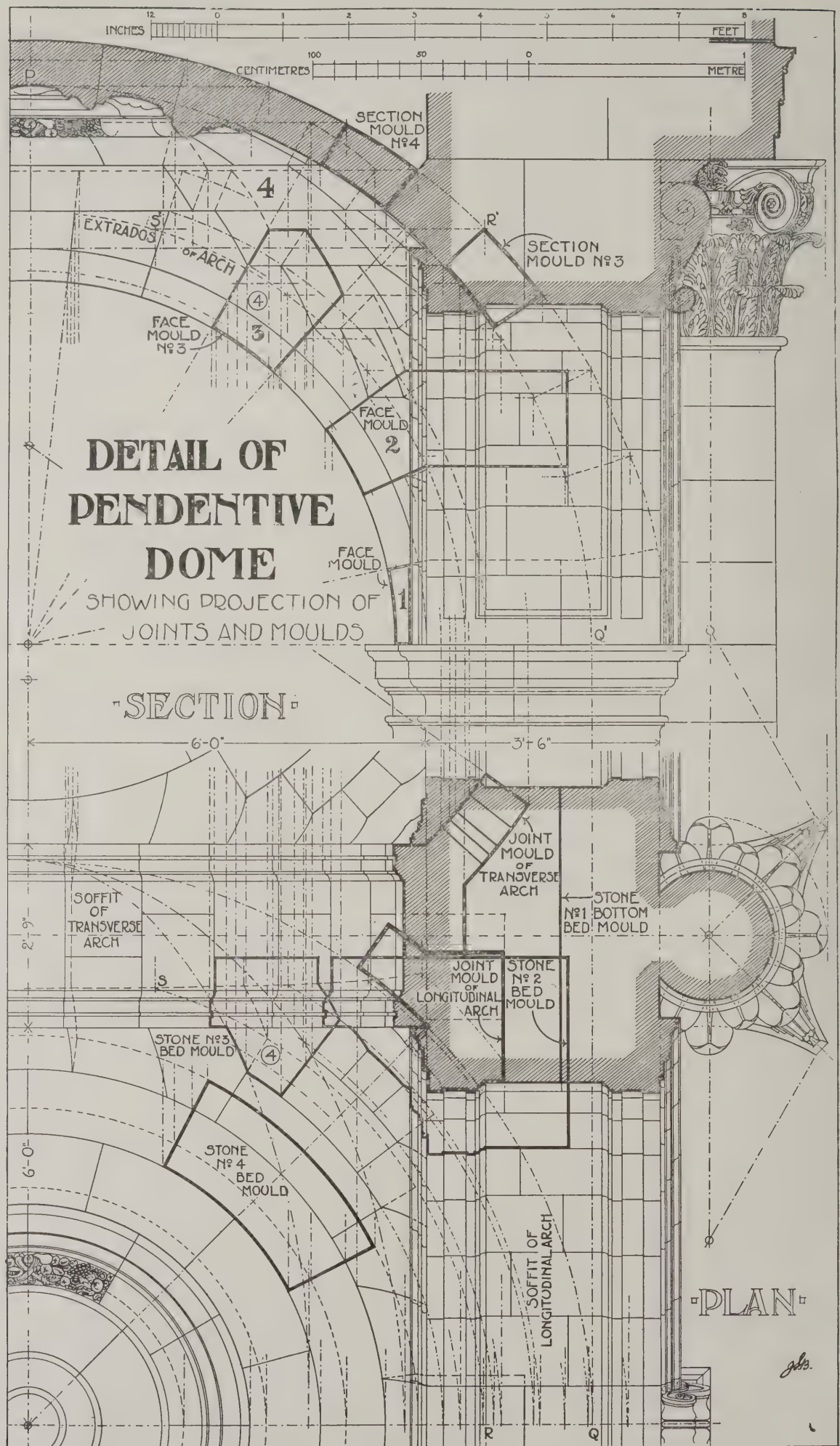


Fig. 2.



suitable number of arch-stones, and draw the joints normal. Observe that the extrados of the archivolt and the margin of the cross arches are drawn with the same radius (6 ft.)—a necessary condition when the plan of the bay is a square. On the spherical surface in Section AA draw the horizontal joints until they meet the radiating joints of the arch; then project the former (as shown by dotted lines) to the points b, c, d, e, etc., on plan, from which they are drawn concentric with the base of the hemisphere. From the Section AA project into plan the intersection of the horizontal and radiating joints, as at f<sup>1</sup> and f, and draw the vertical joints, as fg, converging to the plan centre. Each course of ashlar on plan should now be divided into stones of a suitable length, and the vertical joints drawn. In fixing the lengths of these stones care should be taken to have the courses properly bonded together.

To draw the vertical joints in the sectional elevations, the extremities of a joint in plan, as jh, are projected up to cut the horizontal joints in the points j<sup>1</sup>h<sup>1</sup>. An intermediate point k<sup>11</sup> should be taken on the section of the dome projected into plan and swung round to cut the joint jh in the point k. Project up from k and across from k<sup>11</sup> on the spherical section to find the point k<sup>1</sup>, and through the three points j<sup>1</sup>k<sup>1</sup>h<sup>1</sup> draw the elevation of the vertical joint, which will be part of an elliptical curve, as shown by the dotted curved lines on the right side of the section AA. The intersections of the radiating joints of the arch-stones with the spherical surface are found in plan by projecting down the extremities of the joint, as l<sup>1</sup>m<sup>1</sup>. Take an intermediate point n<sup>1</sup> in elevation and project it across to the section at O<sup>1</sup>, drop a projector to plan at O, and swing round to meet the projector dropped from n<sup>1</sup>. The elliptical curve of the joint may now be drawn in plan through the three points l, n, m. In Fig. 2 a number of quarter ellipses containing those joints are shown.

#### *Full-size Drawings and the Moulds.*

In making the full-size drawings on the drawing floor or platform for the purpose of mould-cutting nothing but the actual lines required to produce the moulds need be shown. In Fig. 2 observe that a great deal more than is actually necessary for this purpose has been drawn. With straightedge and large square set out the axial lines of the compartment, one-quarter only of which need be set out, and from those lines in plan draw down the square (6 ft. equidistant from the axis of the dome) formed by the longitudinal and transverse arches. Add the width of the two arch soffits, 3 ft. 6 in. and 2 ft. 9 in. The detail sections of the archivolt and sunk panel moulding may now be added. Using a long trammel set to the diagonal of the square just drawn as a radius, draw the section curve of the inner spherical surface. This quarter-circle drawn from P to Q<sup>1</sup> is the section through the pendentive on the diagonal of the square, and when complete, as in the small-scale drawings, the section is a semicircle.

Next draw the external spherical surface in section from a centre slightly lower than that just used, thus making the dome thicker at its junction with the wall and cross-arches than it is at the crown, which is advantageous to its stability. This outer spherical surface is intersected by the vertical plane of the wall over the longitudinal arches (see section AA, Fig. 1) and by the extrados of the transverse arches (see section BB, Fig. 1).

On the inner curve of the spherical section space out the width of the ashlar courses, varying the divisions as may be necessary in order to obtain the best possible junction with the stones in the transverse arches. Before these can be definitely fixed, however, the elevation of the transverse arch, together with the soffit and archivolt of the longitudinal arch, should be drawn. Divide the soffit of the former into an odd number of equal-sized stones from 12 in. to 14 in. in

width, and draw the joints normal. These radiating joints should now be drawn to intersect the horizontal joints of the inner spherical surface (see section), and, in order to obtain the complete outline of the several moulds, the radiating joints should be extended to meet the horizontal joints of the outer spherical surface, which latter (shown dotted) are projected across from the extrados curve in section.

As in the small-scale drawing, so in this, project the horizontal joints of the inner spherical surface into plan, and from the centre of the dome draw them concentric with each other. For the purpose of obtaining the bed-moulds, the horizontal joints of the exterior spherical surface are projected and drawn in the same manner. Now draw the vertical joints of the spherical part in plan, beginning with those joints between the dome stones and the arch-stones, the projection of which was explained in dealing with the small-scale drawings. The other vertical joints are arranged so that the courses of ashlar are well bonded together, and so that the stones are not too long for convenient working and handling.

In plan observe that all the horizontal joints on the exterior spherical surface below the course containing the stone No. 4, intersect with the vertical wall at one end, while at the other they intersect with the extrados of the transverse arch.

To draw the line of intersection (shown dotted) between the outer spherical surface and the extrados of the transverse arch, proceed with all the horizontal joints of the spherical surface as with the following: The exterior joint projected from the point R<sup>1</sup> is produced until it meets the extrados of the transverse arch (shown dotted in section) in the point S<sup>1</sup>, and from this point a projector is dropped to plan to cut the same horizontal joint from R produced in the point S. The point S is on the line of intersection, and the latter may be drawn through a number of such points similarly obtained. The radiating joints of the arch-stones need not be projected into the plan of the spherical soffit, as they are not actually required on the bed-moulds, but they are shown here, and the method of projection was explained in connection with the joint lm in the small-scale drawings.

The archivolt joints of the longitudinal arches should be projected into the plan, but it is only the overall projection of the archivolt beyond the wall line that is required on the bed-moulds of the stones forming this arch. The method of projecting these joints is shown by dotted lines at the right side of the plan, Fig. 1. The vertical joints (as shown in plan) on the soffits of the arches are arranged to suit the sunk guilloche ornament which is suggested in the drawings of Fig. 1, but in every case the stones should not be too large for convenient handling.

For the cutting of the stones marked 1, 2, and 3, face, joint, and bed-moulds are required, and for all domical stones, such as No. 4, a bed-mould and a section mould are necessary. For each of the stones mentioned the moulds are indicated by thick lines. When more than one stone of the same size and shape are required, these are worked from the same moulds, the number of such similar stones required being marked on the drawing and on the moulds, as shown on the bed and face moulds of stone No. 3, of which four are required in this bay.

*(To be concluded).*

[The concluding portion of this article—which will be published in our issue for next week—deals with the stone-cutting, each of the four stones being taken successively and a detailed account given of the setting-out and working; the letterpress being accompanied by carefully-executed drawings showing the block in its different stages, from commencement to finish. The article as a whole will, we think, be welcomed as an admirably clear exposition of a subject that is not always so happily handled.]



## HERE AND THERE.

BLUE-BOOKS and White Papers, Memorandums, and Official Reports in general, have such a ponderous air that their perusal might well be prescribed as a complete means for stultifying the imagination. Their very title-pages are forbidding, and the inclusion of a line like this—"Presented to Parliament pursuant to sec. 76 of the — Act, 1907 (7 Edw. 7 c. 29)"—is all-sufficient to frighten away the reader who has no liking for official literature. Nevertheless, these unprepossessing papers are mines of information if only one will take the trouble to search their impersonal contents; in which respect they merit our attention, at a time when, if she were here, the queen in "Hamlet" would have ample cause again to exclaim, "More matter, less art." I reflect on this subject now for the reason that during the past week a Memorandum, an Official Report, and a Blue-book have come into my hands, and, having mastered the feelings of aversion which the first sight of them gave rise to, I desire to make a few comments on certain remarks which I find in their pages.

Taking the Blue-book first, embodying the "Report of the Departmental Committee appointed by the President of the Board of Agriculture and Fisheries to inquire and report as to Buildings for Small Holdings in England and Wales, together with Abstract of the Evidence, Appendices, and a Series of Plans and Specifications"—here's a right full title!—I would draw attention to one matter concerning planning which has direct relation to the remarks I made some time ago on the small suburban house, and is really a root factor in the whole problem. The Report goes in detail into the considerations which should govern the planning and arrangement of every room of a small holding. The particular remarks, however, with which I am concerned are those relating to the "parlour." Thus the Committee of Ten (including Mr. Raymond Unwin, F.R.I.B.A., and Mr. A. Ainsworth Hunt, M.S.A.): "There can be no doubt about a strong desire for a parlour or sitting-room in addition to the other accommodation. The evidence of many of the small holders whom we interviewed showed that they were in favour of having this additional room, and the strength of the desire for it was indicated by the general tendency to convert the scullery into a living room, and the living room into a parlour, in cases where only the two rooms had been provided. On the other hand, it is probable that the direct connection between the extent of the accommodation provided and the amount of rent to be paid is seldom realised, and many occupiers with limited means who regard a parlour as a necessary feature of their house, if they understood that it involved the payment of sixpence or a shilling per week additional rent, with proportionately increased rates, would prefer to have the lower rent and the less accommodation. While the desire to possess a parlour is evidently strong, general testimony was confirmed by our observation that, in most cases, it is only put to slight and occasional use. It appears desirable, therefore, to plan the house without a parlour wherever the need for economy must override other considerations. . . . On the other hand, where economy is a less urgent consideration, there seems good reason for providing a parlour, whether in deference to the general desire for it, or in order to give a room suited to purposes which the spread of education and culture undoubtedly tends to multiply."

With this I am entirely at variance; for, in my view, we have here no other than an official blessing on what is a most mistaken idea and a most foolish use of limited means. The committee, of course, cannot fail to see that the "parlour" is little better than a lumber-room, a place where the family are made thoroughly uncomfortable during those rare hours when they

occupy it. Hence, it would be a work of mercy to endeavour to get out of the working-class mind the notion that the doctor, the district visitor, or the parson is impressed with any sense of respectability by being shown into such an apartment. If a separate sitting-room is to be provided, then let every endeavour be made to get it used as a sitting-room, but if the tenants' inclinations lead them to live in the kitchen, then let all this mock-respectability be put an end to by instilling the right thoughts in the minds of children—with whom, in this matter as in others, the only hope of improvement lies. And, carrying on this little homily a stage further, let it not be forgotten that the middle classes are no whit better than the so-called working classes in such matters. Suburbia has its make-believes in abundance. But people, I think, are getting more reasonable in their outlook, and the future will witness a great change in the house-plan as bequeathed to us by the Victorian era.

This brings me to the Memorandum. It also is concerned with much the same subject, and, emanating from the Local Government Board, is under the ægis of that once prominent man, John Burns, now so strangely silent as a Minister of the Crown. The Memorandum is devoted to the consideration of the arrangement and construction of houses for the working classes built under the Acts of 1890-1909, and summarises the views of the L.G.B. on the more important of the principles involved. Space does not allow of my going into these matters in any detail, but there is one item to which I will briefly refer. It concerns the building of houses in rows. There is surely no more distressing feature in modern towns than interminable rows of houses of one pattern, and that a very bad one; houses whose backs are an unholy medley, and whose fronts afflict us with their bald uniformity. It is well, therefore, that the Local Government Board should take the view that "it is undesirable that long rows of houses without a break should be constructed; and, as a rule, the number of houses in a continuous row should not exceed ten or twelve. Long rows are open to objection, not only because overcrowding of houses on the site may be the result, but also because they give a monotonous and depressing appearance, and prevent easy inter-communication between streets."

But the chief feature of the Memorandum is the inclusion of five types of plans for small houses, which, as with one exception they neglect the "parlour," meet with my ready approval. No elevations are issued with the plans, as the Board think that if model elevations were supplied the result might be to stereotype designs to some extent.

Finally we come to the White Paper—the thirtieth report of the Comptroller-General of Patents, Designs, and Trade Marks, for last year. Having rather a bias towards invention, I scanned readily enough these official pages, with a special eye for building patents; but motors, and life-saving apparatus and kinematograph appliances alone are favoured by the comment of the Comptroller-General. The sole item of interest is the inclusion, in Appendix U, of the Design Rules, 1912, which came into operation last July. As it may be of service to some readers to know of these, I will add the following statement:—That a design shall be deemed to be used as a model or pattern to be multiplied by any industrial process within the meaning of Section 22 of the Copyright Act, 1911. (a) When reproduced in more than fifty single articles, unless the latter form only a single set: and (b) where the design is to be applied to (1) printed paper hangings, (2) carpets, floor cloths, or oil cloths, (3) textile goods, (4) lace, not made by hand.

UBIQUE.

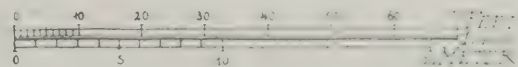




Entrance Front.



Ground- and First-Floor Plans.



MODERN DOMESTIC ARCHITECTURE. HOUSES OF INTERMEDIATE SIZE. V.—HOUSE AT STAFFORD.  
EDGAR WOOD, F.R.I.B.A., ARCHITECT.

(See page 105.)







DETAILS OF SCULPTURE FROM THE OPERA HOUSE, PARIS.—XI.

*(See page 405.)*







*Supplement to THE ARCHITECTS' AND BUILDERS' JOURNAL, Wednesday, April 16th, 1913.*







*Photo: Bedford Levere & Co.*

BRITISH MUSEUM EXTENSION: THE NEW NORTH FAÇADE. JOHN J. BURNET, LL.D., A.R.S.A., ARCHITECT.





## OUR PLATES.

### *The British Museum Extension.*

AS the Centre Plate in this issue we illustrate the new north façade to the British Museum, which has been erected in Montague Place from the designs of Mr. John J. Burnet, LL.D., A.R.S.A. With the exception of the iron railings in front, which are now being put in position, this portion of the extension scheme is practically complete, and the building is expected to be opened early in the summer of the present year. The addition comprises basement and sub-ground floors, providing ample storage accommodation, chiefly for the constant accessions to the library; a ground floor consisting of a range of galleries, also to be appropriated for the uses of the library; a mezzanine floor providing studies and students' rooms; and an upper floor devoted to a range of galleries, 380 ft. in length, for the exhibition of the Egyptian or other collections.

The façade, which is thoroughly in keeping with the old part of the building, consists of a colonnade of engaged Ionic columns, flanked at either end by massive pylons.

We reproduce on the next page an isometric drawing showing the construction of a portion of the main front. Portland stone has been used throughout, except for the main and side entrances, which are framed in with granite. Considerable care has been taken in the correction of optical illusions. All the columns are inclined inwards from the vertical axis to the extent of  $2\frac{1}{4}$  in., thus preventing the front from appearing to lean towards the street. The columns are also irregularly spaced, the distance between each progressively increasing towards the centre from either end; the appearance of crushing at the middle of the building being thus completely avoided. All the windows are executed in metal, the desire of the architect having been to emphasise the extreme simplicity of the masonry.

There is a rich lead cresting over the top cornice, with crowns and sceptres at intervals above the columns. Effective relief is given to the top member of the cornice by a series of lions' heads spaced regularly between the columns. In the centre is a large Minerva head, the model portions of which are in cast lead. The crest above the upper window of the middle bay is the work of Sir George Frampton, R.A., who also supplied the models for the two lions, which are placed on either side of the main entrance. These lions have been executed in the conventional Greek manner, in order to harmonise with the lower portion of the building.

In connection with the extension a new thoroughfare has been formed on the main axis of the building, and other street improvements have been carried out, giving the new front a very effective setting. Perspective drawings, plans, and elevations of the complete scheme were illustrated in our issue for July 3rd, 1907.

### *Details of Sculpture from the Paris Opera House.*

The photograph reproduced on page 403 shows the great carved frieze on one of the returns to the stage block that rises high above the entrance portion of the Paris Opera House. The gigantic size of the design can be gauged from the carver who is shown at work on the frieze.

### *House at Stafford.*

As the fifth example in our series of modern houses of intermediate size we illustrate on page 401 a house which has been erected at Stafford from the designs of Mr. Edgar Wood, F.R.I.B.A., of Manchester. This house stands on rising ground, with a fair expanse of country in front and around. The south front faces towards the garden, which is treated with side terraces raised above the centre. The outside walls are faced with a 2 in. Staffordshire brick, hard-burnt, of broken

purple and grey-red tones; the stone used for the windows, door openings, and other details being Bath. All the roofs are flat, formed of concrete and steel, and covered with cement. The roof water is first collected in roof tanks for domestic purposes, before being allowed to run to waste. The interior is finished in plaster, the dining-room and drawing-room having marble slab mantels. All the woodwork is painted white and finished with enamel.

## THE NEW SOUTHWARK BRIDGE.

IN our issue for February 26th last we reproduced some photographs of Southwark Bridge, which had then just been closed to traffic, prior to the work of its demolition being commenced. The bridge was erected in 1814-19 from the designs of John Rennie.

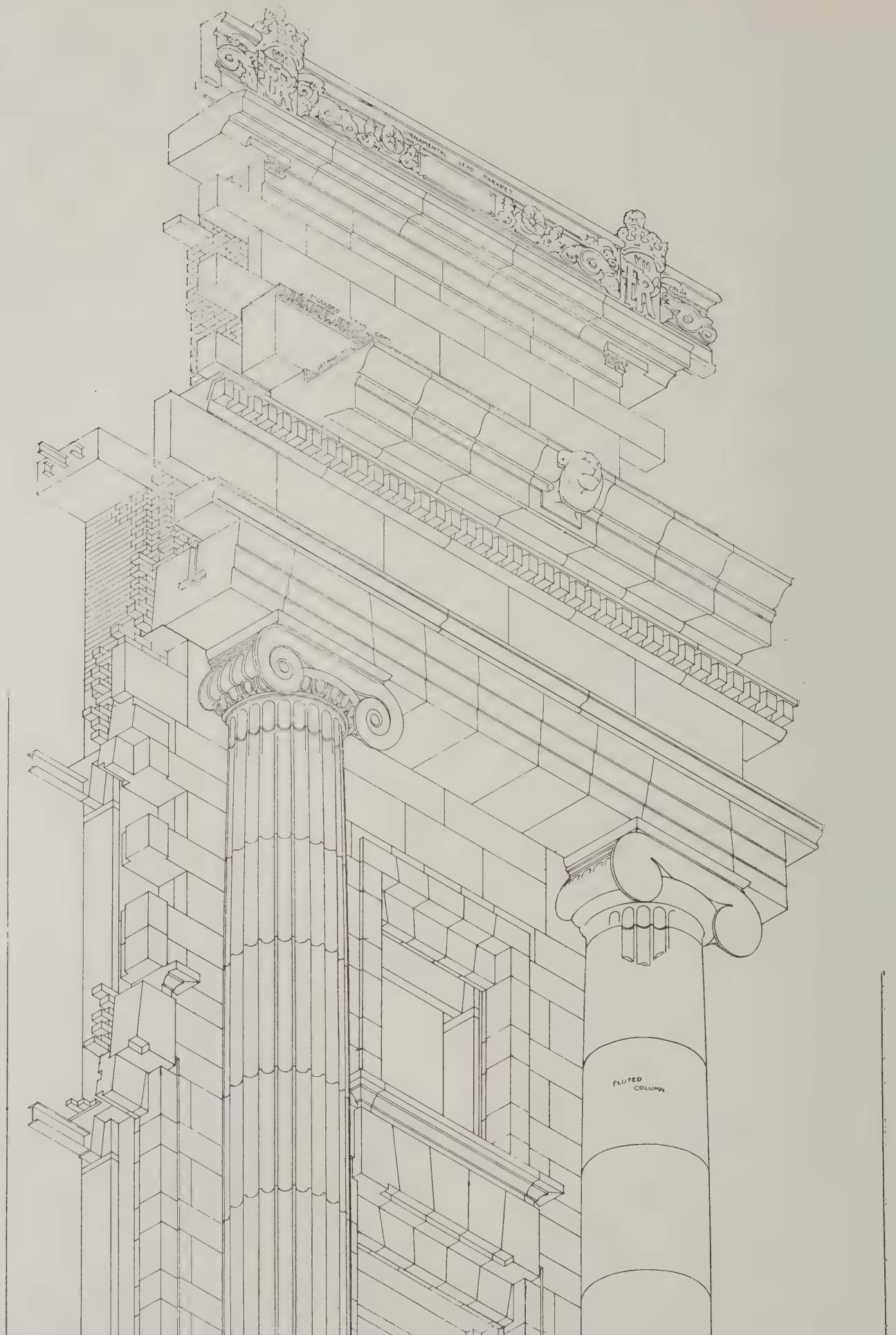
In conjunction with the illustrations of the bridge that appeared in the issue of this Journal above referred to, it is instructive to study the drawing which is reproduced on this page. This shows one of the stone piers of the new bridge, the design for which has been prepared by Sir Ernest George, A.R.A. The new bridge will span the river in five arches. It will be seen that a feature is made by carrying up the piers on each side and thus providing a recess or shelter upon the footway, the stonework having a pierced lunette with pediment above (the balustrade is interrupted in the drawing to show this feature). The piers at the two ends or approaches will be surmounted by sculptured devices. All the stonework will be of granite. The levels of the approaches will be improved, but as no additional width is secured to the road at either end the iron arches are designed to spring from the present abutments, the extra width to the bridge being gained by



THE NEW SOUTHWARK BRIDGE: DETAIL OF ONE OF THE STONE PIERS. SIR ERNEST GEORGE, A.R.A., ARCHITECT.

cantilever construction outside the girders. Messrs. Mott and Hay are the engineers for this portion of the work.

The demolition of Rennie's bridge is now proceeding, the contractors being Sir William Arrol and Co., Ltd. The contract sum for the new bridge is £278,148. The work is expected to take three years and a half to complete.



BRITISH MUSEUM EXTENSION: ISOMETRIC VIEW SHOWING CONSTRUCTION OF NEW NORTH FACADE.

JOHN J. BURNET, LL.D., A.R.S.A., ARCHITECT



MODEL ANSWERS TO R.I.B.A. EXAMINATION QUESTIONS.

INTERMEDIATE EXAMINATION.

BY G. E. FRANCIS.

HISTORICAL ARCHITECTURE—(a) GREEK AND ROMAN.

Only six questions to be answered. Time allowed, 4 hours.

Question 1.

Draw a section and elevation, not less than 3 in. high, of the entablature over two columns, of a Greek Doric temple, a Greek Ionic temple, and a Roman Corinthian temple; show the treatment of the angle volute, and give sketches of the capitals used for the antæ in each instance.

Answer.—The examples illustrated are the Parthenon at Athens; the Temple on the Ilissus, Athens; and the Pantheon at Rome. The Roman pilaster cap was developed from the Greek anta and follows the proportions of the Order. The Greek Corinthian anta cap differed from the Order, an example being that found in the Temple of Apollo Didymæus, Miletus.

Question 2.

Illustrate by free sketch elevation, plans and bird's-eye view, the general arrangement of one of the great Roman thermæ. State what you know about modern conjectural restorations of the same, and if possible name authorities.

Answer.—According to modern restorations (chiefly by French Beaux-Arts prize winners, Viollet-le-Duc and M. Blouet) the general arrangements of the great Roman thermæ usually consisted of three main divisions:—

(a) The great central block (shown in sketches) containing the baths—which resembled the modern Turkish type, the tepidarium, or warm room, the caldarium or hot room, and the frigidarium or cool room being the most important apartments.

Dressing-rooms, libraries, and a small theatre were usually contained in this block.

(b) A large open space surrounding the central block and frequently laid out as a Stadium with raised seats for the spectators.

(c) An outer ring of apartments consisting of lecture-rooms, open colonades, and exedrae. A large reservoir frequently occupied one side and supplied the baths with water.

The whole building was frequently raised on a platform, underneath which

were furnaces, etc. The thermæ of Caracalla, Rome (A.D. 212-235), from restorations by M. Blouet, are shown in the sketches. The description given applies particularly to this example.

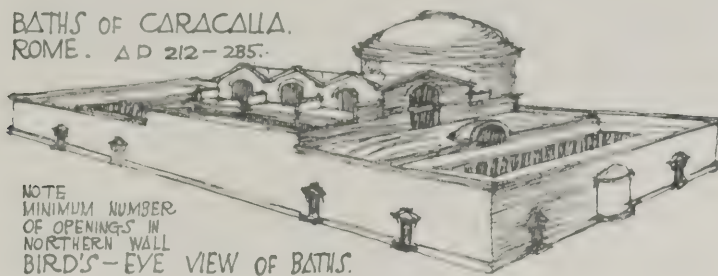
Question 3.

Write a short description of the Tiberine Island, with a rough plan and sketch of the ensemble; state facts concerning archaeological research in connection with same.

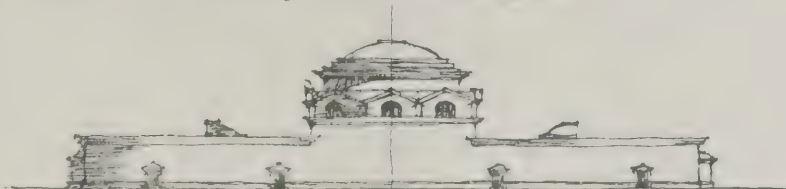
Answer.—The Tiberine Island is situated to the south-west of Rome and

lies N.W. by S.E. Its length is about 295 yards, and its breadth 75 yards. It is also known as the Island of the Serpent of Æsculapius, on account of the legend of the sacred snake which voluntarily disembarked there when brought back by the ambassadors from Epidaurus about 293 B.C. Numerous remains on the island may be attributed to Roman belief in this legend. The island was eminently suitable, isolated as it was, for the introduction of a new cult, with the result that a temple to this god, and its attendant buildings, was founded. The heavy masonry

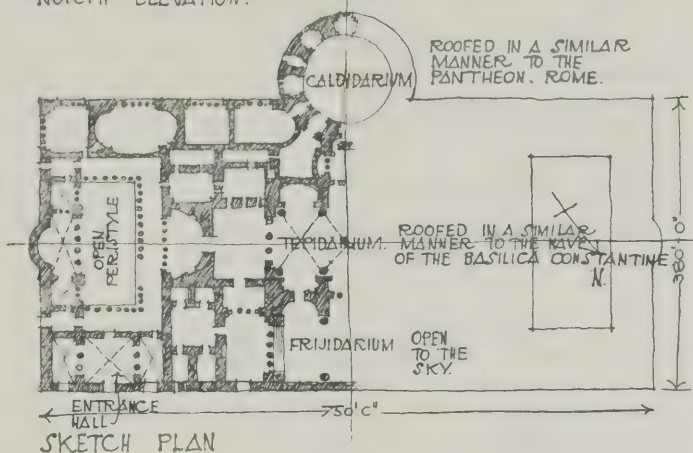
BATHS OF CARACALLA.  
ROME. A.D. 212-235.



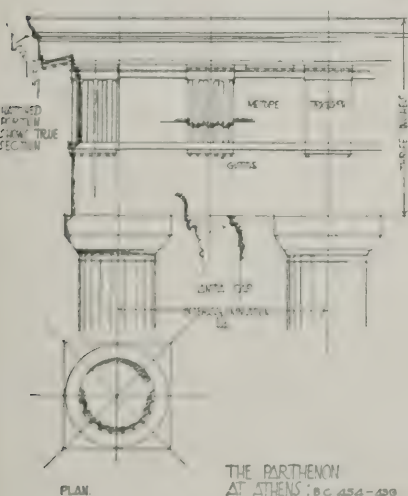
NOTE  
MINIMUM NUMBER  
OF OPENINGS IN  
NORTHERN WALL  
BIRD'S-EYE VIEW OF BATHS.



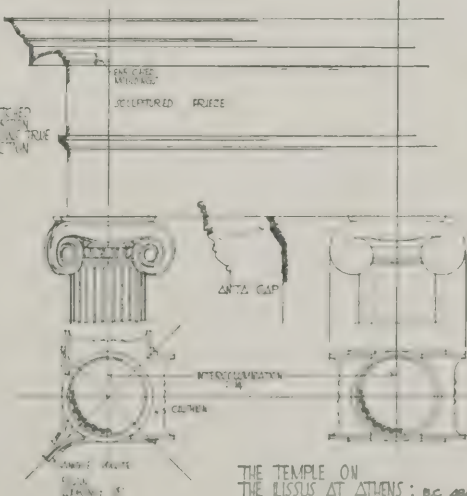
NORTH ELEVATION:



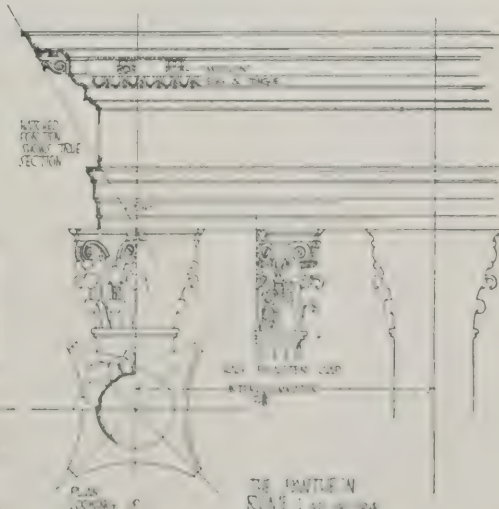
Question 1.



THE PARTHENON  
AT ATHENS: B.C. 454-430



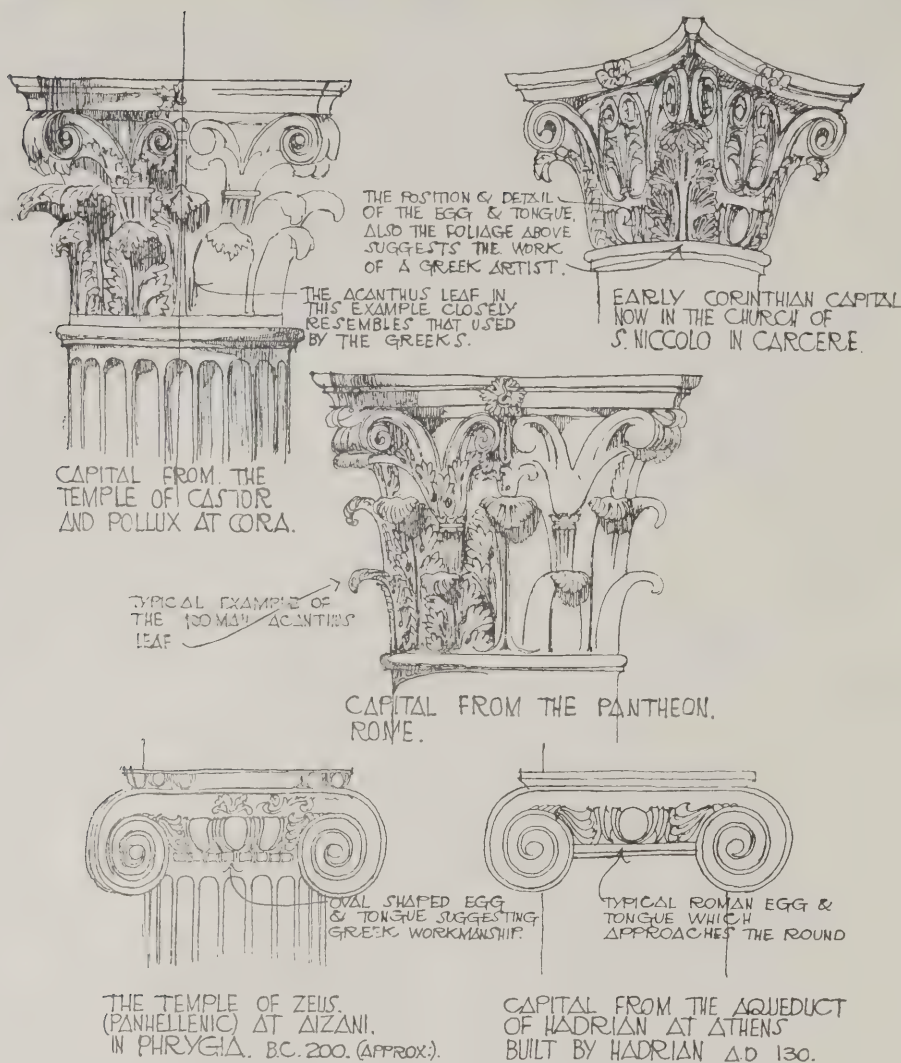
THE TEMPLE ON  
THE ILISSUS AT ATHENS: B.C. 484



THE PANTHEON  
ROME: A.D. 126-128

Question 2.





## Question 4.

embankments were built in the form of a ship, and a large obelisk was placed in front of the above temple representing the mast (see sketch). The temple was peristylar in plan and was adjacent to a sacred wood in which was a well. The curb-stone of this well is preserved near the Church of St. Bartholomew, which is built on the old foundations of the temple.

Other temples on the island were: The Temple of Faunus (B.C. 196), of which the ruins have disappeared, but it is mentioned by Vitruvius as being prostyle; the temple of Jupiter (B.C. 194); the altar of

Semo Sancus, which dates from Antonius; and the Chapel of Tiberinus, the God of the River, which occupied apparently the north-west extremity of the island.

The island was approached from the mainland by two bridges, both of which still exist. That to the left bank is one of the most ancient of stone bridges, having been dedicated, according to an inscription found, in B.C. 62. The other, to the right bank, has suffered considerably from the river. It was repaired in A.D. 370 and finally rebuilt in A.D. 1888. According to old plans, the two bridges did not form a

straight line, but approached at an angle, the connecting road on the island being formed into a court in the centre. Restorations may be seen in the works of Piranesi and Canina, while the Library of the Ecole des Beaux-Arts contains works on the subject by Delannoy. The recent work by M. Besnier contains interesting information on the subject.

## Question 4.

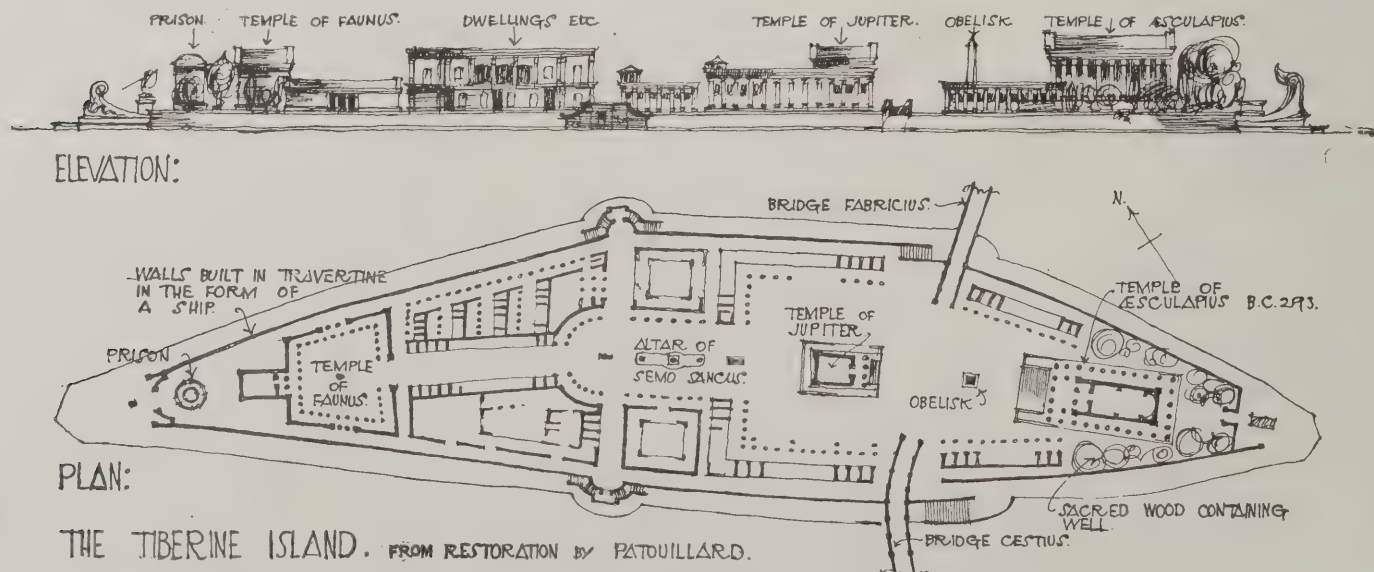
Give three sketches of Græco-Roman detail, name place of origin, and contrast same with a sketch of work consistently Roman.

*Answer.*—Græco-Roman work was that executed by Greek captive artists for various Roman Emperors. It may be distinguished from Roman work by its additional refinement. The Ionic capital from the Temple of Zeus at Aizani is contrasted with the capital from Hadrian's Aqueduct at Athens. Numerous examples may be found in the Corinthian capital, as that in the Church of St. Niccolo in Carcere, the Temple of Castor and Pollux at Cora, and the temple of Vesta at Tivoli. The two former examples are illustrated, being contrasted with the Pantheon at Rome.

[The concluding portion of this paper will be given next week.]

## THE LUMSDEN CASE.

In connection with the agitation for an early amendment of the Finance (1909-10) Act, in consequence of the decision in the case of R. J. Lumsden v. Commissioners of Inland Revenue, Alderman Turnbull, of Manchester, has written to Mr. Harry Nuttall, M.P. for the Stretford Division, stating that: "As one who has had a large experience for the last thirty years in the developing, arranging, and financing of large building estates, I am of an opinion that the Act has entirely ruined the building trade and stopped the development of estates through the country, and in no part more than the Stretford Division. If the Act can be amended I am confident that it will tend to bring about a considerable improvement in the house building trade." Mr. Nuttall has replied that he has good reasons for believing that something will be done before long with regard to the law affecting profits on buildings to make it more clear "so that there will be no doubt as to the tax being charged only on the increment value of land, and not on builders' profits."



## Question 3.



## COMPETITIONS.

*Lay-out of Walker Estate, Newcastle-upon-Tyne.*

The following is a summary of the conditions of competition for the suggested laying-out of a portion of the Walker Estate, Newcastle-on-Tyne:—

Premiums of £50, £30, and £20. Closing date, June 19th. The author of any designs selected will not necessarily be asked to carry out the work. Drawings required: Block plans to a scale of 25.344 in. to the mile. Any sections to be of similar longitudinal scale, but of a scale of 1 in. to every 8 ft. vertically. Transverse sections of streets to be to a scale of 1 in. to every 8 ft. Minimum width of a main street to be not less than 40 ft., and of subsidiary streets not less than 28 ft., but distance between main wall of houses in subsidiary streets to be not less than 70 ft. Block plans and sections to indicate intended streets, roads, and the sites of proposed houses, with proposed net rents (*i.e.*, allowing for all rates and taxes being paid by tenant), together with lines of sewers, inclinations of streets, depth, inclinations, fall, size, manholes, ventilators, gullies, etc., the widths of footways and carriageways, and the nature and thickness of materials proposed for street surfaces. Houses to be semi-detached, in blocks of 3, 4, 5, or 6 houses at competitor's discretion, but not to exceed an average of 15 to the acre over area of 80 acres, or 1,200 in all. Each house to have bath, with one, two, or three bedrooms in proportions to be arrived at by the authors. A site of two acres to be shown for a school. Each set of drawings to be accompanied by short report of general character, with particulars of materials proposed to be used for roads and houses, also estimated cost of streets, sewers, etc., and estimated cost of houses, with boundary walls, fences, outbuildings, etc., and estimated rents.

*Lay-out of Park, Bacup.*

The following is a summary of the conditions of competition for laying-out a proposed new park at Bacup:—

Applications to be received on or before April 19th. Closing date, May 31st. Scheme to cost £1,250.

Premiums of £40 to author of design placed first, which will merge in the commission if the author be selected to carry out the work. Competition to be limited to six persons selected from applicants sending in particulars of similar work designed or carried out by them on or before April 19th. Author of design placed second will receive £20 and the remaining four £10 each. Applicants to state remuneration required for carrying out the scheme, and if payment by commission is desired this must be calculated on the *estimate* only and not on the actual cost of the complete work. The scheme to include a bandstand, bowling green, lawn tennis court, conveniences for both sexes, glass houses for gardeners' use, suitable fence, children's playground with necessary appliances. Drawings required: General plan of lay-out, to a scale of 41.66 ft. to the inch. Sections of bowling green and lawn tennis courts, plans and sections of bandstand conveniences, glass houses, playgrounds, and drains. A report on the scheme is required, with short specifications and comprehensive estimate of cost, which is to include competitor's commission or remuneration. The Com-

mittee do not bind themselves to give the carrying out of the work to any selected competitor, and in the event of the Committee carrying out the work themselves the successful competitor must supply sufficient detailed plans, working drawings, and particulars to enable this to be done. No further remuneration beyond the premium to be given for this work. The Committee may, or may not, appoint an assessor.

## LIST OF COMPETITIONS OPEN.

APRIL 18.—SECONDARY SCHOOLS, READING.—Reading Education Committee invite designs for Kendrick Boys' and Girls' Secondary Schools from architects within the borough. Premiums, 70 guineas and 30 guineas. Particulars, Education Office, Blagrove Street, Reading. Mr. Ernest Newton, A.R.A., F.R.I.B.A., is the assessor.

APRIL 19.—HIGH SCHOOL, MOTHERWELL.—Dalziel School Board invite designs for a new high school. Assessor, Dr. J. J. Burnet, A.R.S.A., F.R.I.B.A. Second, third, and fourth premiums, £40, £30, and £20. Conditions to be obtained from Mr. Thomas M. Young, Clerk to the School Board of Dalziel, Motherwell.

APRIL 21.—COUNCIL SCHOOL, NORTHAMPTON.—Northampton Borough Education Committee invite architects practising in the borough or county of Northampton to submit plans for a new council school. Conditions from Stewart Beattie, Secretary, Borough Education Offices, 4, St. Giles's Street, Northampton.

APRIL 29.—MUNICIPAL OFFICES, BARNET.—Barnet Urban District Council invite designs for new municipal offices, to be erected at a cost not exceeding £4,000. Premiums, £25, £15, and £10. Particulars from Mr. W. F. Wilkins, M.S.E., 40, High Street, Barnet. Designs to be delivered to Mr. H. W. Poole, Council Offices, 40, High Street, Barnet.

MAY 31.—"IDEAL HOMES" EXHIBITION.—COTTAGES AND BUNGALOWS.—Designs are invited for (1) A workman's detached cottage; (2) a pair of workmen's semi-detached cottages; and (3) a bungalow for four single persons. The prize in each case is £50. Assessor, Mr. Leonard Stokes, F.R.I.B.A.

JUNE 7.—HOSTEL FOR MALE STUDENTS, EXETER.—Mr. Edwin Cooper, F.R.I.B.A., is assessor. Particulars (one guinea, returnable), H. Lloyd Parry, Town Clerk, Exeter. Summary in our issue for April 2nd, and plan of site the issue for April 9th.

JUNE 14.—BATHS, NEWCASTLE.—The Corporation invite designs for baths at Benwell, Walker and Heaton. Conditions, with site plans, obtainable (postal order 1s.) from A. W. Oliver, Town Hall, Newcastle-on-Tyne. Assessor, Mr. Herbert W. Wills, F.R.I.B.A.

JUNE 14.—MUNICIPAL BUILDINGS, DEVONPORT.—The Corporation invite designs for municipal buildings and a guildhall. Premiums, £350, £150, and £100. Assessor, Mr. Ernest Newton, A.R.A., F.R.I.B.A. Conditions (£2 2s., returnable) from R. J. Fittall, Town Clerk, Municipal Offices, Devonport, to whom designs are to be sent.

JUNE 19.—LAYING OUT ESTATE, NEWCASTLE.—Corporation invite designs for laying out a portion of their Walker Estate. Premiums, £50, £30, £20. Particulars (one guinea, returnable), A. M. Oliver, Town Clerk, Newcastle-on-Tyne.

## LEGAL.

*District Surveyors' Fees.*

At the Lambeth Police Court on April 7th Mr. Hopkins delivered a considered judgment in regard to some summonses taken out by Mr. Bernard Dicksee, district surveyor, on behalf of the District Surveyors' Association and himself, against Messrs. Holliday and Greenwood, Ltd., builders, of Brixton. Mr. Hopkins remarked that in form the summonses asked for the infliction of penalties upon the builders for having failed to give the district surveyor building notices under the London Building Act, 1894. In substance the District Surveyors' Association asserted and the London County Council denied the right of each district surveyor to receive notice of and to earn fees for public duties performed upon the new school buildings of the Council's schools to be erected within the area of his jurisdiction. After reviewing the facts, Mr. Hopkins said he was of opinion that Mr. Dicksee was entitled to a building notice in each of the three instances in which he had issued summonses, and he fixed the penalty at 40s. in each case and allowed the complainant £15 15s. costs. He expressed his willingness to state a case.

## OBITUARY.

*Mr. William Flockhart, F.R.I.B.A.*

We regret to announce the decease, on Thursday, April 10th, of Mr. William Flockhart, whose health, in consequence of an operation, had been far from satisfactory for some considerable time. The



THE LATE MR. WILLIAM FLOCKHART.

funeral took place on Monday afternoon last. At the moment of going to press we are unable to obtain any precise information with respect to Mr. Flockhart's illness, but we hope to be able to publish fuller particulars in our next issue. Mr. Flockhart was elected a Fellow of the R.I.B.A. in 1901.

*Mr. Sidney R. F. Smith, F.R.I.B.A.*

We regret to announce the death of Mr. Sidney R. J. Smith, F.R.I.B.A. He was the architect of many public buildings, the chief of which is the Tate Gallery at Millbank. Among other buildings erected from his designs are the schools and infirmary at Norwood, most of the public libraries of Lambeth, the Cripplegate Institute, and stations for the City and South London Railway. Mr. Smith was fifty-five years of age.



# THE BUILDING TRADES EXHIBITION AT OLYMPIA.

THE fifth biennial Building Trades Exhibition at Olympia was opened in state on Saturday last by the Right Hon. the Lord Mayor, Sir David Burnett, who was attended by the Sheriffs and other officials of the City Corporation. In the course of a short speech, made from the pavilion of the Trussed Concrete Steel Co., after a preliminary inspection of the stands, the Lord Mayor said that the exhibition, while chiefly interesting to those connected with the building trades, made a strong appeal to the general public. To the latter, especially, he strongly recommended the desirability of a visit, which, he fully believed, would afford a great amount of pleasure and a considerable access of knowledge. He declared the exhibition open with the sincere wish, and with the assurance, that it would be a great success in every respect.

The luncheon, which was served in the Pillar Hall, was attended by about 180 guests, including Mr. Reginald Blomfield, A.R.A., the Hon. Edward Strutt, Sir Ernest George, A.R.A., Mr. E. Guy Dawber, Mr. George Hubbard, Mr. C. Fitz-Roy Doll, J.P., Mr. Percy B. Tubbs, Mr. Gerald C. Horsley, Mr. Arthur Keen, Mr. Leonard Stokes, Mr. Ernest J. Brown, Mr. Walter Lawrence, Mr. A. W. S. Cross, Mr. John Slater, Mr. Arthur T. Bolton, Mr. Walter Cave, Mr. F. Dare Clapham, Mr. Edwin T. Hall, and Mr. William A. Pite.

Mr. Reginald Blomfield, A.R.A., pro-

posing a vote of thanks to the Lord Mayor, said that he (Sir David Burnett) had performed the duty of opening the exhibition with the grace and charm that characterised him in all his public functions. On any important occasion, he continued, whether of great emergency or of great national rejoicing or sorrow, they always turned for assistance to the Lord Mayor, who occupied one of the oldest and most dignified of the City offices. The Lord Mayor had visited and opened what, after a close inspection, he (the speaker) regarded as a very attractive and interesting exhibition. Sir David Burnett, being a member of a well-known firm of City surveyors, was a peculiarly appropriate person to come and perform that ceremony, and he had great pleasure in proposing his health and a cordial vote of thanks.

The Hon. Edward Strutt, seconding the motion, said that, as President of the Surveyors' Institution, he had a special interest in supporting the Lord Mayor on that occasion. Sir David Burnett was a member of their own Institution and had done honour to it by so ably filling the distinguished office to which he had attained. As surveyors, they were not so closely allied to the building trades as the architects; but there were many architects and quantity surveyors in their profession, and in this way they were brought into constant touch with the building trades. He was a countryman and, as such, was glad to

know that an endeavour was being made to lessen the cost of country cottages. He had been appointed to a Departmental Committee of the Board of Agriculture to inquire into the question of country housing, and he could say that, though much excellent building had been done in the past, that of the present day was fully equal to it in soundness, construction, and artistic finish.

The Lord Mayor, in reply, having thanked the mover and seconder of the vote of thanks, said that the fact of having the President of the R.I.B.A. and the President of the Surveyors' Institution with them at the opening ceremony alone set the hall-mark on the exhibition, and the guests present were all representative of professions connected with the building trades. He would like to congratulate Mr. Montgomery on the fact that his exhibition was a real exhibition and not a show. It was a great exhibition in every sense of the word, and when one realised that within the walls of that building were concentrated all the modern inventions and productions of practical science as applied to the building trades, it could be easily understood of what enormous value the exhibition was to all who were associated with those trades. At the present day, he continued, houses had to combine architecture, hygiene, and art—and all at a small cost; and the exhibition showed how it could be achieved. No exhibition, however, could show how to get good work



GENERAL VIEW OF THE EXHIBITION.

Photo: Tella Camera Co.





Photo: Tella Camera Co.

## THE OPENING CEREMONY.

without adequate payment; but this one could, and did, show that the highest form of work, to be compared with that of past ages, could still be done if an adequate price was paid for it.

Sir A. Brumwell Thomas, in a few graceful words, then proposed the health of Mr. Montgomery, the promoter of the exhibition.

Mr. Montgomery, in reply, said the exhibition revealed the highest expression of the craftsman's art—in wood, iron, steel, clay, and even in concrete. In it would be found the materials to build the £110 ideal house of the Local Government Board, and the materials with which to erect a new palace for the King. The exhibition was thoroughly representative of building from the drains in the basement to the chimneys on the roof. He thanked them very cordially for their kind reception.

## THE STANDS.

As in former Building Trades Exhibitions, some very effective stands have been erected, and in the design of several of them the hand of the trained architect is clearly apparent. This is especially so in the case of the stand which has been erected for the Trussed Concrete Steel Co., Ltd. The particular object here was to show the adaptability of "Hy-Rib" to various forms of construction, and a very successful result has been secured. The stand is a modern Classic treatment, and has been designed by Mr. Thomas Wallis. Doric shafts support an entablature, with the name of the firm in letters of gold above. Considerable novelty is displayed in the detail and enrichment. The stand has the appearance of being con-

structed of Caen stone, but, in reality, consists of a "Hy-Rib" framework covered with plaster (the plasterwork having been executed by Messrs. John Tanner and Son).

Another effective stand is that of the Ravenhead Sanitary Pipe and Brick Co. Here again the employment of a firm of architects (Messrs. Fair and Myer, A.R.I.B.A.) has been productive of a good design. The stand comprises a small house carried out entirely in brick, with a tile roof. The brickwork itself is attractive by reason of the peculiarity of its texture—which has a kind of foliated appearance; and no less interesting is the detailing—in particular, the large panel of a lion in relief which is worked out in moulded or cut brick on the end wall.

Another stand carried out in brickwork is that of Messrs. James Brown (London), Ltd. This comprises a little pavilion with moulded bricks to door and window openings, and a roof of rough sand-faced tiles. It was designed by Mr. P. Morley Horder, F.R.I.B.A.

Of quite a different type is the stand in the annexe which is occupied by Messrs. Wm. Harland and Son. This takes the form of a pavilion of Grecian design, having an Ionic portico with low pediment. It is painted entirely in white enamel and has a very chaste appearance. This stand was designed by Mr. E. Keynes Purchase, F.R.I.B.A., and executed by Messrs. Trollope and Colls.

Another stand of architectural character carried out in white enamel is that of Messrs. Gross, Sherwood, and Heald, Ltd., while "The Temple of Minerva" which Messrs. Pinchin, Johnson and Co., Ltd., have again erected, shows a further example of white-enamelled columns, in

conjunction with a dome touched with gold and tasteful colour.

Among what may be called constructional stands, special attention is directed to those of The Expanded Metal Co., Ltd., and the Kleine Fire-resisting Flooring Syndicate, Ltd., both of which are illustrated in this issue.

Georgian work has been taken as the model in several instances. The stand of Messrs. Sissons Bros. and Co., Ltd., is of this character, comprising an attractive little house with two Georgian rooms within; the whole being so designed and treated as to show the variety of treatments to which Hall's Distemper is adapted.

The stand of Messrs. H. and C. Cleaver, Ltd., also displays Georgian design, in this case carried out in woodwork—comprising oak panelling, a carved wood chimney-piece, and old furniture.

The Associated Portland Cement Manufacturers (1900), Ltd., have erected a little pavilion which, though quite simple in treatment, is exceedingly effective.

Numerous other stands take the form of small houses, carried out in wood, brick, or other material—according to the firms' interests—and prominent among these is the stand of the Penrhyn Slate Quarries, which shows an astonishing number of applications to roofing, beams, piers, signs, etc.

Taken on the whole, the stands are certainly as effective as any that have been erected at former Building Trades Exhibitions, and they show what a marked advance has taken place in taste since the days when the crudest erections bespattered with coarse lettering were regarded with equanimity, and even with satisfaction.



# LIST OF TRADE NAMES.

This select list of Trade Names will be found exceedingly useful in tracing the specialities (which are here given in alphabetical order) to their vendors, whose names and stand numbers are appended.

- Aberdeen Grate Interior: Carron Company, K 226, L 238.  
 Airalite Lighting, Cooking, and Heating System: The Non-Explosive Gas Co., Gallery.  
 Anchor Reliance Safes: John Tann, Ltd., C 46.  
 Anti-Corrosion Paint: Walter Carson and Sons, K 227.  
 Aperfectol Paint: Sissons Bros. and Co., Ltd., F 109.  
 Asbestone Tiles and Sheets: British Uralite Co. (1908), Ltd., E 108.  
 Bitubond Building Composition: George M. Callender and Co., Ltd., D 64.  
 Bituna Damp-Course: Vulcanite, Ltd., E 105.  
 Bituso Paint: George M. Callender, D 64.  
 Booth's Patents: British Vacuum Cleaner Co., Ltd., G 142.  
 Brickfor Reinforced Brickwork: Richard Johnson, Clapham, and Morris, Ltd., H 173.  
 Califont Automatic Hot-Water Service: Ewart and Son, Ltd., K 221.  
 Callendrite Sheetting: George M. Callender, D 64.  
 Carbolineum Avenarius: C. A. Peters, Ltd., D 66.  
 Carol Fire: Carron Co., K 226, L 238.  
 Carronwell Fires: Carron Co., K 226, L 238.  
 Castle Fire Registers: Carron Co., Ltd., K 226, L 238.  
 Checkfire Doors: Art Metal Construction Co., Ltd., E 104.  
 Coverine Flat Undercoating: Walter Carson and Sons, K 227.  
 Devon Fire: Candy and Co., Ltd., F 114.  
 Deydol Distempers: Pinchin, Johnson and Co., Ltd., G 150.  
 Dixtampo and Dixtrudo Metals: Delta Metal Co., Ltd., H 174.  
 Dreadnought Fireproof Doors: Fireproof Doors, Ltd., B 18.  
 Durable Tiling: Roberts, Adlard and Co., E 100.  
 Duresco: John Line and Sons, Ltd., D 58.  
 Eclipse Puttyless Roof Glazing: Mellowes and Co., Ltd., G 160.  
 Edinburgh Fire: Carron Co., K 226, L 238.  
 Emperor Cowl: Ewart and Son, Ltd., K 221.  
 Empire Firedoors: Fireproof Doors, Ltd., B 18.  
 Endelline Paints: Thos. Parsons and Sons, G 138, 139.  
 Erno Bath: John Bolding and Sons, Ltd., J 206.  
 Eternit Slates and Sheets: G. R. Speaker and Co., D 63.  
 Eveready Anthracite Kitchener: London Warming and Ventilating Co., Ltd., L 241, 242.  
 Exmet Brickwork Reinforcement: Expanded Metal Co., G 157.  
 Eweol Paints: Asbestos Slate and Contract Co., E 82, 83.  
 Ferrocrete: Associated Portland Cement Manufacturers (1900), Ltd., F 120.  
 Ferro-Glass Lights: J. A. King and Co., F 112.  
 First Cottbus Concrete Moulding Machines: R. H. Baumgarten, F 128.  
 Florence Patent Grates: London Warming and Ventilating Co., L 241, 242.  
 Giant Insulating Papers: Ruberoid Co., Ltd., G 152.  
 Glen Fire Registers: Carron Co., K 226, L 238.  
 Graham Electric Passenger Lift: Scholey and Co., D 61.  
 Graphitum Ironwork Paint: John Line and Sons, D 58.  
 Hall's Distemper: Sissons Bros. and Co., Ltd., F 109.  
 Herringbone Lath: General Fireproofing Co., E 95.  
 Hy-Rib: Trussed Concrete Steel Co., Ltd., G 154.  
 Invincible System of Glazing: W. Edgcombe Rendle and Co., Ltd., H 175.  
 Japolite Japan White: Walter Carson and Sons, K 227.  
 King Cowl: E. G. Wright, B 21c.  
 La Belle Enamels: Walter Carson and Sons, K 227.  
 Lammit Tiles and Sheets: Asbestos Slate and Contract Co., E 82 and 83.  
 Lattice and Keodon System of Reinforced Concrete: Richard Johnson, Clapham, and Morris, Ltd., H 173.  
 Laydas Baths and Closets: John Bolding and Sons, Ltd., J 206.  
 Ledkore Damp-Course: George M. Callender and Co., Ltd., D 64.  
 Lightning Geysers: Ewart and Son, Ltd., K 221.  
 Lion Range: McDowall, Steven and Co., B 14.  
 Mack Blocks and Slabs: J. A. King and Co., F 112.  
 Maurice's Porcelaine: Walter Carson and Sons, K 227.  
 Miller's B.C. Window System: C. Jennings and Co., H 164.  
 Minerva Paints: Pinchin, Johnson and Co., Ltd., G 150.  
 Muraline Water Paint: Walter Carson and Sons, K 227.  
 Newman Boiler Stoves: London Warming and Ventilating Co., Ltd., L 241, 242.  
 New Pattern Doors: John Tann, Ltd., C 46.  
 Okin Vash Paint Cleaner: C. A. Peters, Ltd., D 66.  
 Onnej Gutter Brackets: C. Jennings and Co., Ltd., H 164.  
 Orientolac Enamel: Sissons Bros. and Co., Ltd., F 109.  
 Orkney Grates: Carron Co., K 226, L 238.  
 Permazin White-lead Substitute: John Line and Sons, Ltd., D 58.  
 Permenart Signs: Brilliant Sign Co. (1907), Ltd., J 199.  
 Poillite Roofing: Bell's United Asbestos, Ltd., H 168.  
 Phoenix Fire: Carron Co., K 226, L 238.  
 Porolith Waterproofing Compound: Asbestos Slate and Contract Co., E 82 and 83.  
 Protex Damp-Resister: George M. Callender, D 64.  
 P.T.O. Window Fittings: C. Jennings and Co., H 164.  
 Pudlo Waterproofing Powder: Kerner-Greenwood and Co., C 33.  
 Pyghtle Garden Furniture: John P. White and Sons, Ltd., G 156.  
 Racephas Roofing: Roberts, Adlard and Co., E 100.  
 Reliance Damp-Course: Vulcanite, Ltd., E 105.  
 Rexilite Roofing: Vulcanite, Ltd., E 105.  
 Rok and Rokalba Roofing: D. Anderson and Son, Ltd., F 133.  
 Roman Roofing Tiles: Bell's United Asbestos, Ltd., H 168.  
 Rustikol Paints: Sissons Bros. and Co., Ltd., F 109.  
 Sanodor Felt: D. Anderson and Son, Ltd., F 133.  
 Satinette Enamel: Pinchin, Johnson and Co., Ltd., G 150.  
 Segmental Fire: Carron Co., K 226, L 238.  
 Self-Sentering: General Fireproofing Co., E 95.  
 Selkirk Grates: Carron Co., K 226, L 238.  
 Shire Fires: Carron Co., K 226, L 238.  
 Sideroleum Wood-Preservative: D. Anderson and Son, Ltd., F 133.  
 Siderosthen Anti-Corrosive Paint: D. Anderson and Son, Ltd., F 133.  
 Silveroid Paint: Pinchin, Johnson and Co., Ltd., G 150.  
 Sisco White Japan and Paints: Sissons Bros. and Co., Ltd., F 109.  
 Smokure Chimney-Pots: C. Jennings and Co., H 164.  
 Standard Asphalt: Vulcanite, Ltd., E 105.  
 Steel Wire Lattice Reinforcement: Richard Johnson, Clapham, and Morris, Ltd., H 173.  
 Steleonite Stamped Metal—British Stamped Metal Ceiling Co., E 103.  
 Stoniflex Felts: D. Anderson and Son, Ltd., F 133.  
 Stuccolin Fibrous Plaster: John Line and Sons, Ltd., D 58.  
 Sunphas Paint: Sissons Bros. and Co., Ltd., F 109.  
 Syronite Rust Preventive: Pinchin, Johnson and Co., Ltd., G 150.  
 Teekard Substitute for Teak: C. Jennings and Co., H 164.  
 Triamel Enamel: John Line, Ltd., D 58.  
 Trusset Reinforcement: General Fireproofing Co., E 95.  
 Twink Geyser: C. Jennings and Co., H 164.  
 Unicote Paint: Thos. Parsons and Sons, G 138, 139.  
 Uralite: British Uralite Co. (1908), Ltd., E 108.  
 Vectis Portland Cement: Associated Portland Cement Manufacturers (1900), Ltd., F 120.  
 Veritone Stain and Scumble: Pinchin, Johnson and Co., Ltd., G 150.  
 Victoria Concrete Mixer: Stothert and Pitt, Ltd., C 39 and 40.  
 Vitreous Tiling: Chance Brothers and Co., Ltd., G 160.  
 Vitrolite Paint: Walter Carson and Sons, K 227.  
 Walcarite Paint: Walter Carson and Sons, K 227.  
 Wigmore Lavatories: John Bolding and Sons, Ltd., J 206.  
 Zerolite Insulating Papers: D. Anderson and Son, Ltd., F 133.  
 Zinox Zinc Pigment: John Line and Sons, Ltd.,

## LIST OF FIRMS WHOSE EXHIBITS ARE NOTICED IN THIS ISSUE.

- D. Anderson and Son, Ltd., 426.  
 Art Metal Construction Co., Ltd., 418.  
 Associated Portland Cement Manufacturers, 416.  
 Asbestos Slate and Contract Co., 415.  
 R. H. Baumgarten, 417.  
 Beaver Board Co., Ltd., 420.  
 Bell's United Asbestos Co., Ltd., 422.  
 John Bolding and Sons, Ltd., 426.  
 Brilliant Sign Co., Ltd., 422.  
 British Ceresit Waterproofing Co., Ltd., 426.  
 British Stamped Metal Ceiling Co., 413.  
 British Vacuum Cleaner Co., Ltd., 421.  
 James Brown (London), Ltd., 418.  
 George M. Callender and Co., Ltd., 422.  
 Calmon Asbestos and Rubber Works, Ltd., 420.  
 Candy and Co., Ltd., 423.  
 Carron Company, 419.  
 Walter Carson and Sons, 424.  
 Chance and Co., 420.  
 Electric Hose and Rubber Co., 426.  
 Emdeca Decoration Co., Ltd., 414.  
 Expanded Metal Co., Ltd., 416.  
 Fireproof Doors, Ltd., 417.  
 First Cottbus Cement Goods and Machine Works (R. H. Baumgarten), 417.  
 General Fireproofing Co., 419.  
 Homan and Rodgers, 418.  
 Ironite Co., Ltd., 422.  
 C. Jennings and Co., 420.  
 Richard Johnson, Clapham and Morris, 421.  
 Kerner-Greenwood and Co., 414.  
 J. A. King and Co., 417.  
 Kleine Patent Fire-resisting Flooring Syndicate, Ltd., 417.  
 London Warming and Ventilating Co., 419.  
 McDowall, Steven and Co., 425.  
 Mellowes and Co., Ltd., 425.  
 Non-Explosive Gas Co., Ltd., 425.  
 Nostell Tile and Terra-cotta Works, 424.  
 William Oliver and Son, 425.  
 Thos. Parsons and Sons, 413.  
 C. A. Peters, Ltd., 422.  
 Pinchin, Johnson and Co., Ltd., 424.  
 Ransome-ver Mehr Machinery Co., Ltd., 424.  
 W. Edgcombe, Rendle and Co., Ltd., 423.  
 Roberts, Adlard and Co., 417.  
 "Ronuk," Ltd., 425.  
 Ruberoid Co., Ltd., 423.  
 Siegwart Fireproof Floor Co., Ltd., 423.  
 Sissons Bros. and Co., 422.  
 G. R. Speaker and Co., 415.  
 Stothert and Pitt, Ltd., and T. L. Smith Co., 419.  
 Technical Journals, Ltd., 418.  
 John Tann, Ltd., 421.  
 Trussed Concrete Steel Co., Ltd., 413.  
 Vulcanite, Ltd., 426.  
 R. Waygood and Co., 413.  
 John P. White and Sons, Ltd., 420.  
 Willesden Paper and Canvas Works, 422.  
 E. G. Wright, 423.



# THE EXHIBITS

(FIRST NOTICE).

## R. Waygood and Co., Ltd. Row F, Stand 125 *Electric and Other Lifts.*

Lifts are now so universally employed, both by land and sea, that it is rather astonishing to recall that they are quite an innovation. A generation ago they were rare; to-day no really considerable building is complete without an up-to-date installation. Yet they have been sufficiently long in use to give the requisite experience for their perfection. They are swift, noiseless, safe, luxuriously fitted, and further improvement seems impossible. Nevertheless, as this exhibition demonstrates, progress is still being made, and the lifts seen in operation consequently show many features that will be new to most visitors. The electric passenger lift which, to the no small convenience of visitors, is kept running between the ground floor and gallery of the exhibition is controlled by car switch, with a self-centering detachable handle; and the firm are showing also an electrical lift upon an entirely new system, combining the advantages both of electrical and hydraulic machines. There are, besides, a model of Waygood's full automatic push-button electric passenger lift, and three models of hand-lifts, as well as various lift accessories.

*Addresses:* Head Office and Works, Falmouth Road, S.E. Numerous branches. *Telephone:* Hop 4000.

## Trussed Concrete Steel Co., Ltd. Row G, Stand 154.

### "Hy-Rib" and Its Applications.

At this stand the Trussed Concrete Steel Co., Ltd., are giving special attention to their "Hy-Rib" system of reinforcement, in connection with which they are issuing an admirable booklet explaining and illustrating the system.

"Hy-Rib" is a steel sheeting stiffened by rigid high ribs. The ribs and the lath are manufactured from a single sheet of steel, making it a complete unit of lath and studs. Where "Hy-Rib" is used in concrete floors and roofs, no centering is required for spans of given area, the ribs giving sufficient strength and rigidity; and in walls and partitions there is no need for small stiffening channels and rods. The lath surface is straight and true, and is expanded in such a manner as to provide a perfect key with a minimum amount of plaster. The constructional uses of the material are limitless—it is applicable to walls, floors, roofs, partitions, ceilings, and firing; and curved "Hy-Rib" is used for arched floors, culverts, conduits, silos, tanks, reservoirs, and tunnels. It is made by pressing deep strengthening ribs into a flat sheet of best open-hearth steel, and so perforating and expanding the spaces between that a perfect surface is provided for the application of concrete or plaster in any form. Permanent, solid, waterproof, and presenting a finely-finished appearance, its introduction was followed by instant success, and it is now in use all over the kingdom, in every class of building, and for a large variety of purposes—in industrial buildings of every kind, in business premises, for schools, sanatoria, bungalows, picture theatres, and farm buildings, and for con-

duits, culverts, sewers, and general engineering work. All the Government Departments having control of works have employed it. The material is, of course, eminently fire-resisting, and special stress is laid on the economy secured by getting rid of the expense of centering, "Hy-Rib" being itself a form of centering.

*Address:* Caxton House, Westminster. *Telephone:* Victoria 1296 and 4296. Branches and agencies all over the world.

## The British Stamped Metal Ceiling Co. Row E, Stand 103.

### *Architectural Stamped Metal Work.*

This firm is exhibiting its specialities on the stand of the Emdeca Decoration Co., Ltd., a variety of architectural details in stamped metal being shown. The chief manufacture of the company is the "Steleonite" stamped metal ceiling, which is made in a great number of styles and patterns and to suit a wide diversity of requirements. Innumerable architectural details, such as dadoes, friezes, coves, cornices, mouldings, rosettes, capitals, pillars, brackets, roof ornaments, etc., are manufactured in "Steleonite" in a number of highly attractive designs. "Steleonite" is a non-absorbent sanitary material, free from microbes and bacteria. It can be fixed with very little trouble and is unaffected by jarring, vibration, and the

settlement of buildings. The method of fixing is as follows: Wood furring strips are nailed across the joists spaced to suit the size of each sheet. The ceilings are then fixed with ordinary French wire nails to the strips, starting in the centre and working towards all four sides until the surrounding cornice is reached. "Steleonite" ceilings can be applied to old plaster or wood, if desired, but neither is necessary. In new buildings plaster can be entirely dispensed with, thus effecting a considerable saving in cost. "Steleonite" (which, it may be mentioned, is a fire-resisting material) has many other applications. The new Winter Garden on the Palace Pier at Brighton, which is of skeleton steel construction, has been entirely covered with stamped "Steleonite" metal, all the architectural details being carried out in the material. "Steleonite" is also used in an effective capped sash bar, of which an example is on exhibition.

*Address:* 97, Queen Victoria Street, London, E.C. *Telephone:* Bank 8104.

## Thos. Parsons and Sons. Row G, Stands 138, 139.

### *High-class Paints and Enamels.*

It will be vividly remembered that at the exhibition of 1911 this firm designed their stand to represent the fore-part of a modern battleship, whose wide, level sur-



STAND OF THE TRUSSED CONCRETE STEEL CO., LTD.



faces give ample scope for the illustration of the easy-flowing qualities of this firm's Endelline enamel. It was rather a daring novelty for a building exhibition, but was justified both by the attention it aroused and by the effectiveness with which it served its purpose. By this time much of the novelty has worn off, but none of the enamel; for though the "ship" has been on exhibition all over the country during most of the past two years, it has sustained the ordeals of travel so well as to afford more convincing proof than ever of the enduring qualities of Endelline. It has not been re-enamelled, the proprietors desiring to show frankly how the enamel appears after the hard wear involved in two years of rough voyaging.

In addition to their usual fine range of varnish and enamel samples, Messrs. Parsons introduce a novelty in Unicote, which is a flat finish applicable to new lime-plaster walls. Its use is illustrated by applying it to plaster slabs erected at the exhibition.

Address: 8, Endell Street, Long Acre, W.C. (Works at Mitcham, Surrey; numerous addresses abroad). Telephone: Central 398.

Kerner-Greenwood and Co, Row C, Stand 33.

Pudlo Powder for Cement Waterproofing.

Models made of actual building bricks rendered with Pudloed cement upon which jets of water are continually spraying dis-

play in the most practical manner the waterproofing efficacy of Pudlo; for an inspection of the interior of the models demonstrates that it remains bone-dry in spite of the constant drenching from the outside. The same immunity is observable on the under or inner side of a flat roof filled with water, the ceilings and walls beneath the Pudloed roof remaining perfectly dry. Other models at the stand exhibit the same imperviousness. Pudlo powder is sifted with the cement, the sand and water being afterwards added. The average quantity required is about 3 lbs. to every 100 lbs. of cement; so that assuming the usual proportions of three of sand to one of cement, only 3 lbs. of Pudlo to every 400 lbs. of mixture would be required. The material gives a fine finish and texture to cement mouldings, and is sometimes used in cement mortar for pointing because it makes the stuff smoother and more plastic to work: for which purpose a very small percentage is sufficient. The flat roof here exhibited was successfully treated with Pudlo. The roof was 24 ft. by 24 ft., with concrete  $3\frac{1}{2}$  in., rising to 5 in., the first layer composed of  $\frac{3}{4}$ -in. granite chippings, granite dust, and Portland cement in the proportion of four to one, with two and a half per cent. of Pudlo added to the cement. This was followed by a 1-in. rendering (1 quarter-inch chippings, 1 granite dust, and 1 cement, with five per cent. Pudlo). After a year there has been no sign of leakage. The mate-

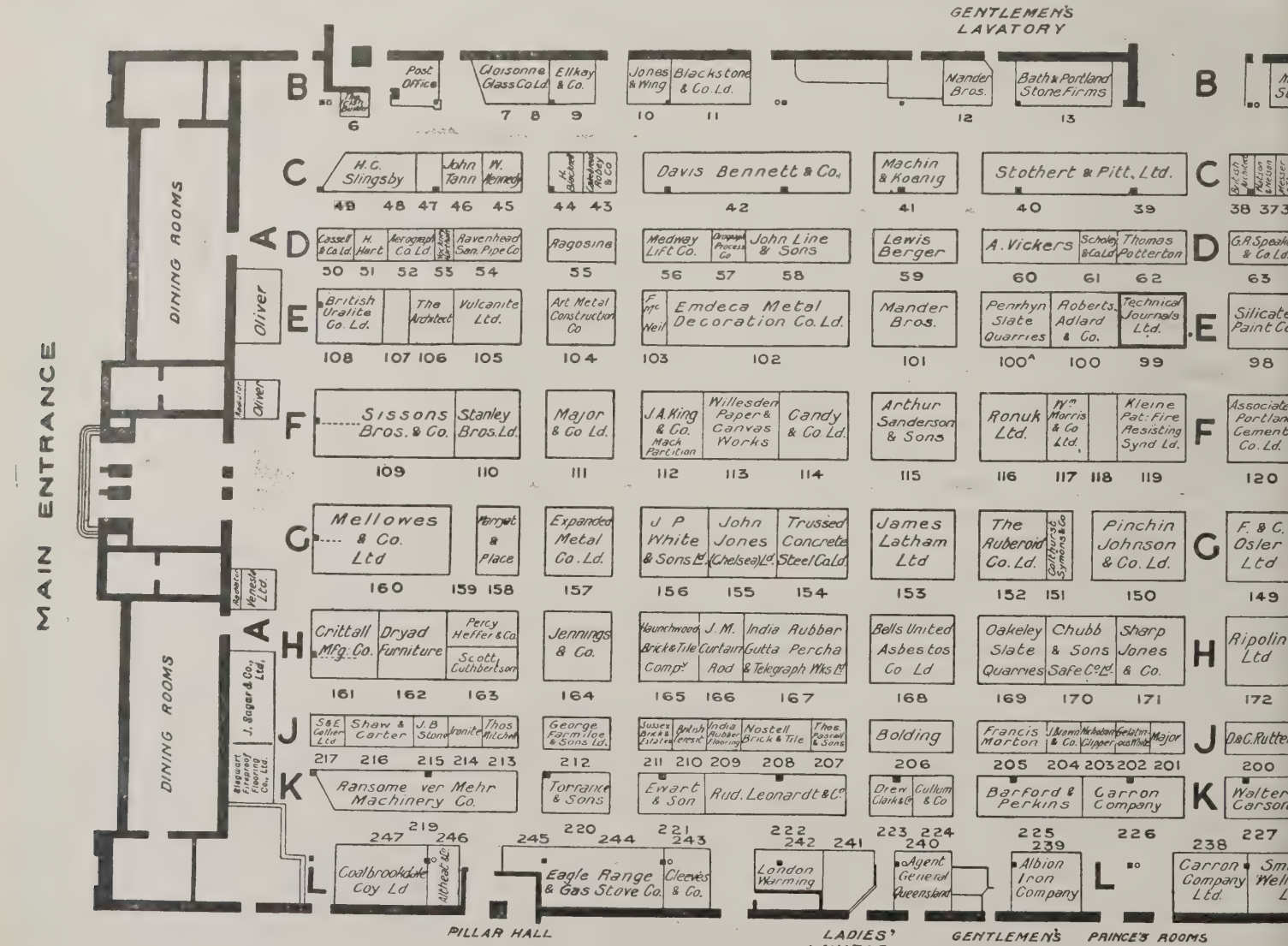
rial, it is stated, has been used with equal success everywhere for flat roofs, damp walls, flooded basements (including stoke-holes and garage pits), tanks, reservoirs, and swimming baths, concrete blocks, and stone. It prevents efflorescence in cement work. We are informed that special terms are being offered during the exhibition.

Address: King's Lynn. Telephones: 93 and 93A.

The Emdeca Decoration Co., Ltd. Row E, Stand 102.

"Emdeca" Metal Sheet Decorations.

"Emdeca" is a wall decoration made from flexible zinc sheets ready for application. It is extensively employed for the walls of bathrooms, kitchens, lavatories, larders, pantries, and similar places where a decoration that can be instantly cleaned is a necessity. It is manufactured in a variety of attractive patterns in imitation of tiles, its surface, embossed and finished in enamel, being perfectly smooth and easily washable. It will withstand fumigation without oxidation, and is totally non-absorbent, meeting the most rigorous demands of sanitary regulations. Other advantages of "Emdeca" are that it cannot decompose, that it petrifies by exposure, and hardens with cleaning. It is proof against unwholesome odours and disease germs, and offers no harbourage for vermin. The best way to clean "Em-



FLOOR PLAN OF THE BUILDING









STAND OF THE EXPANDED METAL CO., LTD.

**The Expanded Metal Company, Ltd. Row G, Stand 157.**

*Expanded Metal Reinforcements.*

Expanded Metal, which for some twenty years past has been in use all over the world, is made from sheets of rolled metal of various thicknesses cut and expanded by machinery into meshes of various shapes, each made in several strengths or weights. The  $\frac{1}{4}$ -in.  $\frac{3}{8}$ -in., and 7-16 in. mesh Lathings, which are made from sheets of rolled steel, are particularly adapted to form a key for plaster in ceilings, steelwork encasing, solid and hollow partitions, exterior walls, and other plasterwork. Expanded Steel Sheets, in their various meshes and weights, are specially suitable as reinforcement for concrete in foundations, walls, floors, roofs, arches, bridges, grain silos, coal pockets, tanks, reservoirs, dams, retaining walls, piers, abutments, pipes, sewers, conduits, etc. The lighter weights of the  $\frac{3}{4}$ -in. and  $1\frac{1}{2}$ -in. Diamond meshes are frequently used in concrete for encasing steelwork. Expanded Steel Bars, in their various sections, are specially suitable as reinforcement for concrete in both cast articles and structural work.

The older type, Diamond Mesh Lathing, has been in use for many years, and is made on a vertical cutting machine, but the Cup and Square Meshes are new inventions, and as they are made on rotary machines which run at a much higher speed than the vertical machines, they can be produced more cheaply than the older type of lathing. In the firm's pamphlet No. 1, full particulars of expanded Metal Lathings for Plasterwork are given, with detailed directions for its use in various services; while pamphlet No. 2 gives a similarly thorough account of expanded steel for reinforced-concrete construction.

A new type of Expanded Metal for reinforcing brickwork, slab partitions, concrete block constructions, etc., will attract particular attention. The Expanded Metal Company, in order to meet the increasing demand for strips of expanded steel as reinforcement for brickwork, have, after careful experiment, devised a machine capable of turning out strips in much longer lengths than was previously possible. Expanded steel brickwork reinforcement—the Exmet brickwork reinforcement—is made in three strengths, from 24-gauge, 22-gauge, and 20-gauge

best mild hoop steel, and can be supplied in coils of practically any length, or flat in bundles cut to any desired length up to 16 ft. The standard coil is 270 ft. long and  $2\frac{1}{2}$  in. wide, but shorter or longer coils can be supplied.

*Addresses:* Head Office, York Mansion, York Street, Westminster (Telephone: Gerrard 819). Works, West Hartlepool. Branches all over the world.

**Associated Portland Cement Manufacturers (1900) Ltd. Row F, Stand 120.**

*Portland Cement.*

At this large stand are shown samples of this company's well-known brands of Portland cement, including "J. B. White and Bros.," "Hilton Anderson and Co.," "Francis," "Nine Elms," "K.B.S.," "Pyramid," "Anchor," "Burnham," "London Portland," "Gillingham," "Gibbs," "Diamond," "Edystone," "Tingeys," "Vectis," "Robins," and their special "Ferrocete" brand for reinforced concrete construction. There are also very interesting exhibits of cement at various stages of its manufacture, of samples of cement ground to various degrees of fineness, of neat sand briquettes of various ages for testing tensile strain, and of cubes of various ages and mixtures for testing crushing strain. Aggregates of various descriptions, both suitable and unsuitable for mixing with Portland cement, form an instructive collection; and the practical tests that are being carried out at the stand with the complete testing apparatus in conformity with the requirements of the revised British Standard Specification, are an un-failing attraction to knots of interested observers. An hydraulic crushing machine for cubes of 50 sq. c.m. area reading up to 50 tons, made at the company's engineering shops from their own designs, is exhibited; samples of plaster of Paris, Keene's Parian and Roman cements are shown, and pamphlets descriptive of the company's brands, works, and process of manufacture can be had on application; while copies of "Everyday Uses of Portland Cement" (third edition), may be inspected at the stand.

*Address:* Portland House, Lloyd's Avenue, Fenchurch Street, London, E.C. *Telegraphic Address:* Portland Telew, London. *Telephone:* Avenue 5690 (Private Exchange).



STAND OF THE ASSOCIATED PORTLAND CEMENT MANUFACTURERS, LTD.



**The Kleine Patent Fire-resisting Flooring  
Syndicate Ltd. Row F, Stand 119.**

*Fire-resisting Construction.*

This firm exhibit a pavilion built entirely with "Kleine" fire-resisting materials—a form that has been adopted for a number of past exhibitions. The structure, which has a clear span of 20 ft. by 20 ft., with a cross-reinforced floor, was to have been allowed ten days in which to mature, but the centering was struck within a week. The framework is of steel, and the possibility of encasing steelwork so as to make it absolutely fire-resisting is clearly demonstrated. The hollow walls are built of Kleine bricks, and although it is not permissible under the County Council regulations to make the outside walls of so slight a thickness, it is apparent that they are eminently suitable for inside division walls, and when reinforced they are capable of sustaining heavy loads. The floor is cantilevered out 1 ft. beyond the general line of the building. The exhibit shows the adaptation of "Kleine" construction to Mansard or sloping roofs, and to the erection of dormer windows without expensive steel framework. It also shows in profile the manner in which the system may be adapted to staircase construction. For decorative purposes a slight overhang at the eaves may be made if so desired, and this additional advantage is clearly illustrated in the exhibit. The roof could be covered with any material in common use, such as slate, tile, or asphalt. Owing to the non-expansion of the brick surface, which affords an excellent key, the last-named material is particularly appropriate as a roof covering, since all possibility of its cracking is eliminated.

*Address:* 133-136, High Holborn, London, W.C. *Telephone:* Gerrard 5328.

**J. A. King and Co. Row F, Stand 112.**

*Mack and King Fireproofing.*

Mack plaster partition slabs, keyed both sides for plastering and of various dimensions, are shown in many of the applications to which they have been so extensively applied.

Fire, sound, and vermin-resisting, light in weight, and of seemingly appearance, they serve, in their several sizes, for partitions, ceilings, pugging, floors, roofs, the encasing of stanchions, etc.; and they are without doubt among those "lighter and more modern materials" which the Government Commissioners were asked to take into account in reporting upon the possibility of building cheaper schools and hospitals. For the plaster partition blocks, no finishing coat is required, as they are smooth-faced on both sides. The Mack plaster ceiling, lining, and insulating slabs may be had with asphalt backing for lining damp walls. The fireproof pugging slabs, 1 in. to 6 in. thick, are made to any width to order, to suit the spacing of joists. The Mack system of fireproofing projecting shop roofs meets the latest requirements of the London County Council, and, *a fortiori*, will satisfy all other authorities. The King pumice partition slabs, which are fire, sound, and vermin-resisting, have been largely adopted for internal and external work in buildings such as skating rinks, cinemas, and hospitals. Examples of the King concrete system of fire-resisting construction for floors, roofs, domes, columns, beams, girder, and stanchion encasing, etc., are also shown; and interesting addenda to a varied and altogether interesting exhibit are a British steel corner plate for forming external angles in plastering; Ferro-glass construction for pavement and other lights; crystal glazing;



STAND OF THE KLEINE PATENT FIRE-RESISTING FLOORING SYNDICATE, LTD.

and a preparation for restoring decayed stonework.

*Addresses:* Bridge House, 181, Queen Victoria Street. Works at Hayes, Rawcliffe, and Glasgow. *Telephones:* Central 773; City 2218.

**Fireproof Doors, Ltd. Row B, Stand 18.**

*Dreadnought Fireproof Doors.*

This firm are exhibiting their Dreadnought fireproof doors, which, they announce, have withstood a temperature of 2,000 degrees Fahr. for four hours. These doors can be ribbed or panelled to any design and the panels may be further ornamented by the addition of artistic mouldings. The Empire fire-doors are somewhat lighter, but equally strong, and are generally used for lifts, staircases, etc., instead of fire-resisting oak or teak doors. All these doors are made to hinge, swing, or slide, and close automatically, and now are installed in theatres, museums, mills, warehouses, country mansions, etc., throughout the world.

Dreadnought cabinets are constructed in a similar manner to the doors, to offer in a minimum space a maximum capacity for the safe keeping of papers, etc., and they have been supplied to the leading corporations and insurance companies, solicitors, etc.

These British-made doors have been installed by H.M. Government at the Foreign Office, Census Office, Tate Picture Gallery, the National Gallery, India Office, National Portrait Gallery, Law Courts, Customs House, Woolwich Arsenal, Imperial Institute, Imperial College of Science, telephone exchanges, Somerset House, Victoria and Albert Museums, post offices, Royal Naval Hospital, and the Admiralty.

*Address:* 46, King William Street, E.C. *Telephone:* City 6789; Central 9876.

**Roberts, Adlard and Co. Row E, Stand 100.**

*Roofing, Wall Tiling, Stone Paving.*

Roofs are always rife with architectural interest, any building on which they are visible owing a good deal of its character to them—material, as well as design, being an important factor in the effect. No more satisfactory way of exhibiting roofing

materials could be chosen than that which is adopted by Messrs. Roberts, Adlard and Co., who exhibit model roofs covered respectively with their various specialities. Racephas stone is recommended by the firm as being eminently suitable as a roof-covering in high-class work. It is quarried in its natural beds, and is of varying colour tones to harmonise with the surroundings in any situation. The R.A. Rustic English slates are in red, fawn, green, and other tones. Eureka Quarry green slates have been in use for half a century on many important buildings. Adlard's green slates are prepared only in random sizes. Variegated green, from the Penrhyn quarries, show a pleasing variation in colour. There are also slates from Bangor, Portmadoc, and Cornwall, and Westmorland. The roof tiling includes the very hard-burnt "Durastic"; reproductions of old tiling; samples of genuine old tiles; and hand-made tiles from the Broseley district. The exhibit includes also Racephas stone paving. Racephas rubble work in a dwarf wall; Dutch wall tiling; cheap but effective specimens of floor tiling; slate masonry, enamelled slate, etc.

*Address:* Bermondsey Wall, S.E. *Telephone:* Hop 87.

**R. H. Baumgarten. Row F, Stand 128.**

*Block and Slab-making Machinery.*

Hand-machines, which can be worked by one man, and produce high-class concrete goods, are a speciality at this stand, Mr. Baumgarten being the representative of the First Cottbus Cement Goods and Machine Works. The machines shown are, respectively, for making concrete roofing tiles (of which samples are shown on the roof of the office), for making concrete bricks six at a time (shown in part of the wall surrounding the stand), and for making partition slabs, of which the office is built. There are also machines for the manufacture of concrete mosaic tiles, and other floor tiles, and moulds for concrete sewer pipes, concrete posts, and hollow floor slabs, are also shown.

*Address:* 8, Manor Park, Lewisham, S.E.



**Homan and Rodgers. Row F, Stand 130.***Fire-resisting Floors and Partitions.*

This firm exhibit their hollow brick fire-resisting floor, which has been used in some 3,500 buildings, mostly in London. These floors are constructed with hollow triangular bricks about 18 in. long, placed between steel joists of a specially light section, and are made with a projecting under-lip that entirely protects the underside of the joist. Concrete composed of broken brick or ballast is then filled in to the required thickness.

The merits of this form of construction are—its cheapness, no centering being required, and the construction being extremely rapid; the key for plaster is good, no hacking being necessary; it is light in weight and sound-resisting, the different densities of the materials and the air-spaces greatly breaking up the sound vibrations.

The floors are most suitable for flats, public buildings, hospitals, schools, or any building where it is essential to have a floor that is both fire and sound resisting, and at the same time light and inexpensive.

This firm also exhibit their patent Reinforced Ferro-concrete floor, which is constructed of steel rods passing through the main girders and forming a continuous tie, showing the adaptability of reinforced concrete in relation to steel-frame construction.

Further exhibits of this firm are their patent reinforced concrete partitions, which are slabs about 2 ft. 6 in. by 1 ft. 3 in., made of coke-breeze concrete, sand, and Portland cement, with horizontal steel rods cast in the concrete top and bottom of slab. A hole for  $\frac{3}{4}$  rod is left vertical in the centre of the slab to allow for the rods being inserted at the time of fixing. This projects about half-way through the groove of the slab above (the slabs being laid to break joint), and is then grouted in with cement, thereby forming a very strong and compact partition capable of resisting heavy blows with a sledge-hammer.

Address: 17, Gracechurch Street, E.C.  
Telephone: Avenue 106. Works at Nine Elms Lane, S.W., and Ware, Herts.

**The Art Metal Construction Co., Ltd.**  
**Row E, Stand 104.**

*Fireproof Furniture, etc.*

This firm, which has recently acquired the goodwill of two well-known firms, is exhibiting examples of fireproof metal furniture and interior fixtures, including varieties of lockers and filing cabinets, together with a bracket stack, a spiral stairway, a counter, a roll-top desk, a duplex curtain case, a door with its frame, and also a Checkfire door, in which, since its acquisition by the Art Metal Construction Co., a number of improvements have been incorporated. Perhaps the most important exhibit of all is a steel filing cabinet, which safely withstood a very severe fire which broke out last year in some business premises at Nancy, France. It will be seen that the drawers were not even warped and still pull open as easily as if the cabinet were new. The peculiar feature of these filing cabinets is their double-wall construction, with an air space between, to which factors their extraordinary fire-resisting qualities are largely due. The material chiefly employed in the manufacture of all the various types of fixtures is fine steelplate specially rolled for the purpose, the usual finish being baked enamel enriched with bronze. The surfaces are remarkably smooth and altogether flawless, the work of the Art Metal Construction

Company being always distinguished by a high perfection of finish. The furniture and fixtures can be had with finishes in imitation of a variety of woods; and from the outward appearance it is quite impossible to detect any difference from actual wood, so excellent is the workmanship. Another adaptation of steel construction is to the equipment of libraries, a number of large installations having been carried out by the Art Metal Construction Co., both at home and abroad. Steel partitions and furniture, including whole cabin equipments, are also in use on battleships, and the practice is now being adopted on passenger vessels. It is in business premises, however, that the greatest development in the use of steel furniture and fixtures has taken place within recent years. Comprehensive equipments are being increasingly provided, with the consequent saving of fire-insurance premiums. Architects' own designs can be executed in steel, and finished to harmonise with any treatment desired. We illustrate an installation of steel desks with steel drawers and roller book shelves, recently carried out by the Art Metal Construction Co.

Address: 5-6, Holborn, London, E.C.  
Telephone: Holborn 6622.

**James Brown (London), Ltd. Row J,**  
**Stand 204.**

*Sandfaced Bricks and Roofing Tiles.*

A pavilion designed by Mr. P. Morley Horder, F.R.I.B.A., gives graceful embodiment to beautiful materials. In it are displayed the very popular rough sandfaced red bricks and roofing tiles which, when used aright, impart most of its characteristic charm to English domestic work. Special types of 2-in. facing bricks in a variety of tints are shown, as well as 2-in. moulded window and door-frame bricks; and the pavilion is covered with Brown's rough sand-faced roofing tiles. This is certainly one of the most delightfully attractive pavilions in the exhibition, especially if one is able to conjure up with the mind's eye the more natural environment of rural landscape which such beautiful materials instantly suggest.

Address: Essex Wharf, Durward Street, Whitechapel, E. Telephone: Central 9513.

**Technical Journals, Ltd. Row E, Stand 99.***Publications for Architects and Builders.*

A full catalogue of our publications being obtainable at our stand, as well as copies of the works themselves, it is unnecessary to go into minute details here. Among the works shown are: "Recent English Domestic Architecture," in several annual volumes (7s. 6d.); "Recent English Ecclesiastical Architecture" (10s. 6d. net), a unique representative series of fine photographs; "Garden City Houses and Domestic Interior Details" (2s. 6d.); "The Practical Exemplar of Architecture" (four portfolios, each 15s. net), edited by Mervyn E. Macartney, B.A., F.S.A., F.R.I.B.A., giving photographic views and measured drawings of the work of masters of the Mistress Art; "Practical Notes for Architectural Draughtsmen" (15s. net), by A. W. S. Cross, M.A., F.R.I.B.A., and Alan E. Munby, M.A., F.R.I.B.A., who exhibit, in a series of plates, accompanied by concise rules and explanations, the essentials of architectural draughtsmanship; "Standard Details" (15s. net), which provides students in architectural schools with the means of studying representative examples of architectural details, interior and exterior; "The Liverpool Sketch Book" (three volumes, 2s. 6d. and 5s. net), showing a selection of the best designs and measured drawings executed, under the direction of Professor C. H. Reilly, M.A., F.R.I.B.A., by students in the School of Architecture of Liverpool University; "Specification for Architects" (with which is included "Municipal Engineer's Specification") (3s. 6d. net), the 1913 edition, revised up to date, of the standard authority on this subject, containing, besides the invaluable specifications for all departments, more than a dozen specially contributed articles on matters of current importance to architects and builders; "The Architectural Review" (1s. monthly), which, in its new form, has achieved an enormous success, and is now acknowledged to be "unique in this country, and unequalled by anything that is being done abroad"; and "The Architects' and Builders' Journal."

Address: Caxton House, Westminster.  
Telephone: Gerrard 817.



Steel Desks with steel drawers and roller bookshelves.  
(BY ART METAL CONSTRUCTION CO., LTD.)



**Carron Company. Row K, Stand 226; and Row L, Stand 238.***Ranges and Fire-grates.*

This company, incorporated by Royal Charter in 1773, has a successful business career extending over a century and a half, and the firm have just been appointed ironfounders to His Majesty the King—a unique distinction. A few of the principal exhibits are here briefly described:

In the "Aberdeen" interior, one of the company's new "Shire" series, the details are arranged from the company's unique collection of eighteenth-century original wood-carvings, the panels being designed by Sir Robert Lorimer, the eminent Edinburgh architect. Fitted to this interior is the Company's "Carronwell" fire—to be seen burning. This fire is sunk with raised or flush hearth, built on solid fire-brick, and having air-ducts conducting from any convenient point—for example, from the fender—to positions under the bottom grate. The air-supply is regulated by hit-and-miss ventilators. This type of grate is shown in order to demonstrate how easily any of the Carron Company's eighteenth-century fire-grates can be adapted to this particular form of heating.

On either side are other examples of the "Shire" series, set with panels *en suite* and finished in armour-bright. The "Orkney" has the "Edinburgh" fire; the "Selkirk" is arranged with "Phoenix" fire, which is rather shallower from back to front than the other fires mentioned. All these fires are interchangeable, and are equally effective in heating power. Other fires equally include the "Carol," Carron base, and Segmental, attractively arranged with appropriate surroundings.

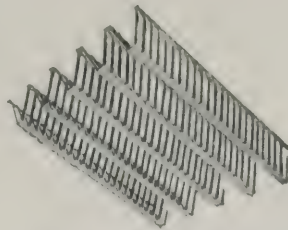
A fine Adam suite with dog-grate, and in the front a beautiful Georgian example, show how well the company can meet the demand for purity of style disassociated from the modern additions required by the scientific heating expert. We are informed that as this branch of the business is very adequately dealt with at the company's showrooms, 3, Berners Street, they did not feel justified in exhibiting more than two examples of this class of grate, preferring to give more prominence to the "Shire" series of designs, which represent an entirely new departure since the last Building Trades Exhibition.

All the above-mentioned exhibits are on the wall stand. On a central stand (Row K, Stand 226), the company show several of their high-class ranges, together with a large selection of mantel registers of the Castle and Glen series—these being all recent introductions. The stand comprises a comprehensive display of baths, railings, and electrical ranges, and some examples of the Abbev series of gas fires, etc., the latter being a sincere and successful attempt to show that gas fires can be artistic as well as useful.

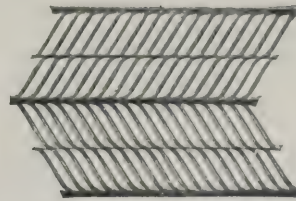
*Addresses:* Carron, Stirlingshire; Phoenix Foundry, Sheffield; 3, Berners Street, London, W. (Telephone: Gerrard 480); 23, Princes Street, W. (Telephone: Gerrard 4123); 15, Upper Thames Street (Telephone: Bank 442).

**The General Fireproofing Co. Row E, Stand 95.***Trusset, Self-Sentering and Herringbone Lath.*

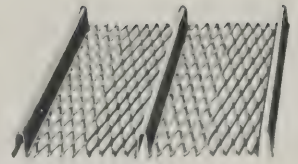
This stand comprises concrete piers formed of Self-Sentering, which support a sloping and flat roof constructed partly of Self-Sentering and partly of Trusset and concreted over. Suspended ceilings are constructed partly in Herringbone Lath, and partly in Self-Sentering,



Trusset (for Partition).



Herringbone Lath (for Ceilings, etc.).



Self-Sentering (for Floors and Roofs).

**GENERAL FIREPROOFING COMPANY'S SYSTEM OF REINFORCEMENT.**

portions of which are plastered over, so that the method of construction is completely visible. At one end there is a fence constructed of Trusset without the use of any temporary shuttering. Plaster partitions, constructed respectively of Self-Sentering and also of Trusset, are also shown outside the pavilion, while inside there are partitions constructed of Herringbone Lath. Two sections of floors, one a flat slab and the other an arched slab, further illustrate the applications of Self-Sentering, which eliminates all forms, and can be used for roofs, floors, walls and ceilings.

*Address:* 34, and 36, Gresham Street London, E.C. *Telephone:* 4715 Central.

**The London Warming and Ventilating Co. Ltd. Row L, Stand 242.***Anthracite Stoves and Kitcheners.*

Anthracite stoves in various shades of highly finished ceramic enamels are shown at this stand, some of them in action. The company always hold in stock a variety of sizes and patterns. Two of the new ever-ready anthracite kitchener ranges are shown in action, one a 60-in. double-oven self-contained kitchener, with rising fire, special thin hot-plate, and pressure boiler of the O.H. pattern; the other a 36-in. portable self-setter, with extra large oven and a hot-plate so constructed that boiling can be done on any part. Among the advantages claimed for the Eveready are that it provides a constant supply of hot water day or night, and burns a smokeless fuel, and does away with the necessity for frequent cleaning of flues and chimneys. It gives a continuous burning fire, and avoids the labour and dust caused by re-lighting every morning. It insures abso-

lute cleanliness, and guards against any possible chance of smuts falling into utensils when cooking on the hot-plate.

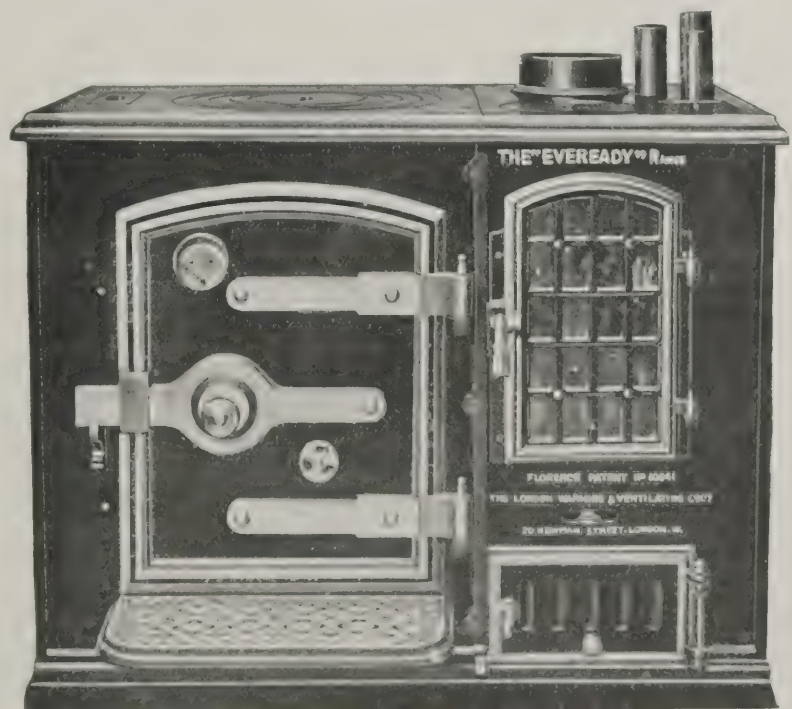
In fuel consumption the Eveready ensures economy even although burning night and day. With anthracite at 35s. per ton, the cost of maintenance for a 48-in. range is only 3s. 9d. per week, or for a 36-in. self-setter 1s. 9d. per week. The 36-in. range is specially well suited for small houses, flats, week-end bungalows, yachts, wherries, etc., and will easily cook a full-course dinner for seven or eight people.

Other specialities are the Florence boiler grate and the Economic and Newman boiler stoves, either of which will efficiently heat three or four rooms at a cost for upkeep equal only to that of one ordinary open fire.

*Address:* 20, Newman Street. *Telephone:* Central 4136.

**Stothert and Pitt, Ltd., and T. L. Smith Co. Row C, Stands 39 and 40.***Concrete and Tar Macadam Mixers.*

Notable among the exhibits at this stand are—(1) A small Victoria concrete mixer with loading apparatus and automatic water tank. The plant is electrically driven, and is mounted on a truck with road wheels; (2) a Victoria mixer with batch charging hopper; (3) a Smith mixer with batch hopper. This is driven by electric motor; (4) a hand concrete mixer; (5) a Smith tar-macadam mixer with stone-heating apparatus. Special attention is drawn to plant (1), which is complete in every detail, and is specially adapted for contracts where the



The "Eveready" Anthracite Range.

LONDON WARMING AND VENTILATING CO., LTD.



mixer has to be frequently moved as the work proceeds.

*Addresses:* 38, Victoria Street, Westminster (Victoria 1849); 11, Victoria Street, Westminster (Victoria, 3930).

**The Beaver Board Co., Ltd. Row G, Stand 140.**

*Beaver Board Panelled Walls and Ceilings.*

Beaver Board is comparatively a new material in the United Kingdom, and one which since its introduction has been meeting with remarkable success, many architects throughout the country specifying it regularly. This stand comprises a specimen room, the walls and ceiling of which are entirely finished with Beaver Board, giving an excellent idea of the decorative effects and also of the practical fixing of the material.

Beaver Board is a pure wood fibre wall-board, taking the place of lath, plaster, wallpaper, or other materials used for constructing walls and ceilings in new buildings of every type, while its possibilities for remodelling and repairing purposes are unlimited. It is made of selected woods reduced to fibrous form, pressed into panels of about three-sixteenths of an inch in thickness, forming a panelling of extraordinary toughness and durability, and possesses a beautiful pebbled matt surface admitting of artistic decoration.

It is stated that Beaver Board does not deteriorate, but actually improves, with age. Where it is used, therefore, there is no fear of cracked walls and ceilings; it makes the house warmer in winter and cooler in summer; it retards fire, resists damp, deadens sound, and withstands shocks and vibrations that crack and bring down plaster. The economy of time and money which Beaver Board provides is claimed to be one of its important features. There is no waiting day after day for each coat of plaster to dry, and no leaving bare walls for months before they can be prepared.

That this material has a natural field of usefulness is apparent on examining the work which has been carried out with it. The vendors state that builders supply and timber merchants in all the large cities are carrying it in stock, so that supplies can be readily obtained. The Beaver Board Co., Ltd., have their London offices at 4, Southampton Row, W.C., which are entirely fitted out with Beaver Board, illustrating in a very practical way the possibilities of the material.

*Address:* 4, Southampton Row, W.C. *Telephone:* Holborn 1979.

**C. Jennings and Co. Row H, Stand 164.**

*Timber, Joinery, Woodwork, etc.*

Prominent features of this exhibit are: Fretwork screens and arches, doors in various designs, a polished teak shop front, and stairs leading from one side of the stand to the other. One elevation shows twenty-four panels as samples of various kinds of plywood, compo-board, matching, etc.

Windows are on view, showing in one case the application of this firm's P.T.O. fittings, and in the other Miller's B.C. system. Doors are exhibited in about forty designs.

Special attention is directed to the specimens of oak and ash plywood. Both kinds are particularly free from defects, and are scraped on one surface ready for use.

Teekard is a new substitute for teak, and is very effective in block flooring.

Examples of its uses are on view, and small samples may be had on application.

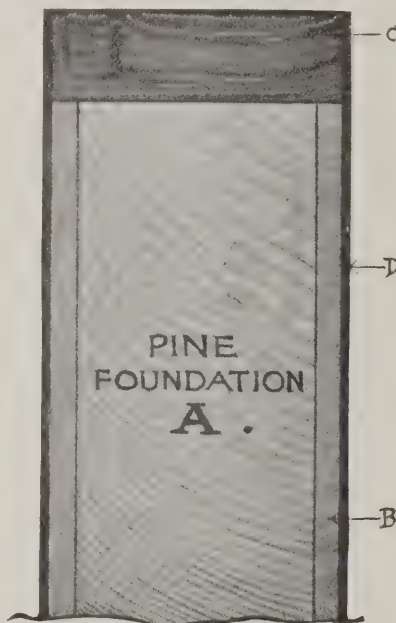
Other features of the exhibit are—newels and balusters in various designs, fencing, garden gates, balcony, balustrading, mantelpieces, the patent "Twink" geyser, mouldings, electric-light casings, and picture rails, Smokure chimney pots, and Onnej gutter brackets.

*Address:* Bristol.

**John P. White and Sons, Ltd. Row G, Stand 156.**

*Garden Furniture, Hospital Doors, etc.*

English oak, converted to various useful and ornamental forms, is well seen at this stand; while Austrian oak and other hardwoods also assume many beautiful shapes. Doors, gates, and garden seats, sound in construction and beautiful of design, have earned the firm an eminent reputation. A special feature at this stand is the firm's patent flush fire-resisting hospital door.



B Asbestos composition slab; C, Hardwood fillet; D, Hardwood veneer.

**SECTION THROUGH WHITE'S FIRE-RESISTING HOSPITAL DOOR.**

The foundation of the door is composed of an inner frame constructed in bone-dry yellow pine, comprising wide stiles, bottom rail, top rail, and lock rail, the panel spaces being filled in with flush muntins about 3 in. wide, and spaced about 2 in. apart, thus making a solid flush foundation for the door of a finished thickness of 1½ in. Each side of this foundation is covered with an asbestos composition slab, three-sixteenths of an inch in thickness, with a toothed surface to receive veneer. The side edges and top and bottom of the door are lined with a solid hardwood fillet, in the same wood in which the door is to be veneered, so as to allow for any fitting or adjustment which may be necessary in hanging the door. The whole surface of the door on each side is then veneered over the asbestos composition slabs and the edging strips with a stout veneer of whatever wood may be selected. The composition gives a surface so hard as to make denting almost impossible, while the prevalence of non-conducting material reduces to a minimum the risk of shrinkage, warping, or twisting. Veneering in teak, oak, walnut, or mahogany, may be specified; and where a less expensive door is required, as for kitchens and domestic offices, the veneer may be omitted, the surface of the asbestos slab lending itself ad-

mirably to painting. Three types of these doors are made. Type A is described as plain solid flush throughout; type B is provided with square, oval, diamond or octagonal inspection holes, prepared for glazing; type C is inlaid, a beautiful effect being produced by the reversing of the grain. About 200 of these hospital doors have been hung at the Royal Infirmary, Bristol (Messrs. H. P. Adams and G. Holden, architects.)

*Addresses:* The Pyghtle Works, Bedford; 123, New Bond Street, W. *Telephone:* Bedford 11; Mayfair 3312.

**Chance Brothers and Co., Ltd. Row G, Stand 160.**

*Vitreous Tiling.*

The vitreous tiling manufactured by Messrs. Chance Brothers and Co., Ltd., is shown on the stand of Messrs. Mellows and Co., Ltd., sanitary fitters, No. 160, Row G, just inside the main entrance from Addison Road Station.

Two model bathrooms are erected, and these have been tiled in excellent taste and soft harmonious colouring. Bathroom A shows the effect of the antique edge material especially suitable for work of this character, while the other room has been decorated with a dado of regular edge tiles with close joints and finished with a moulded capping of the same substance. This vitreous tiling forms an artistic wall-covering for work in private residences, hotels, and public buildings, and is very durable in character and artistic in appearance.

Several panels are also exhibited showing the same material used as mosaic for flooring, forming a permanent non-slippery and effective paving.

*Address:* Glass Works, near Birmingham.

**Calmon Asbestos and Rubber Works, Ltd. Row C, Stand 29.**

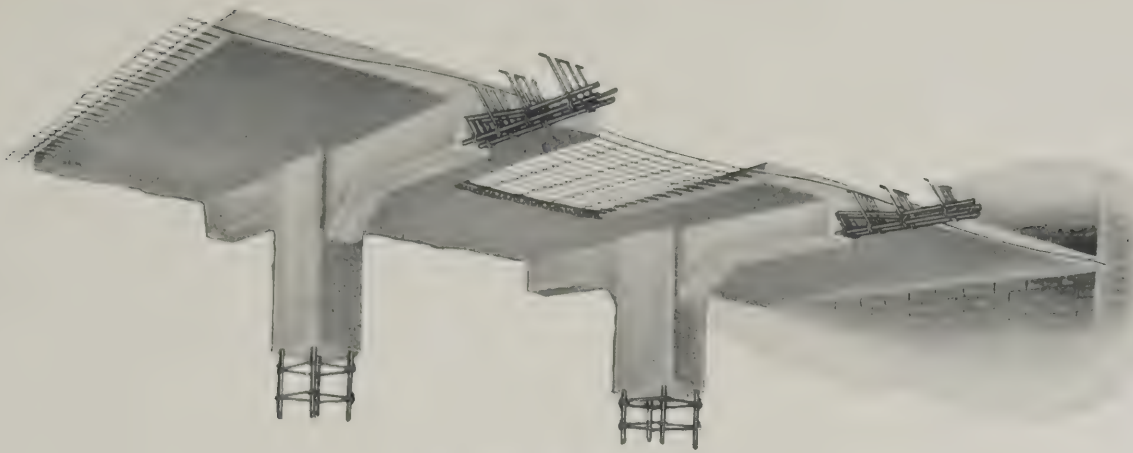
*Roofing Tiles and Wall and Ceiling Sheets.*

Recent Government recommendations of the use of more modern materials for the construction of schools and hospitals point very clearly in the direction of such resources as are seen at this stand. These include the Calmon Asbestos roofing tiles, which are supplied in one standard thickness, but of various patterns for different styles of roofing, as the honeycomb, the diagonal, the square, etc., while special tiles are supplied when required for double eaves course, etc. The tiles, which are sent out ready cut and holed according to the style of roofing and overlap required, are made in three colours, grey, blue, and red, and can be nailed in the usual way to wooden battens or boards, or can be fixed direct to steel angle-irons. Their light weight enables a considerable saving in roof construction.

The wall and ceiling sheets are supplied in two standard sizes—namely, 4 ft. by 4 ft. and 8 ft. by 4 ft. For walls and partitions they are simply nailed or screwed to the uprights, the joints being covered with wood or other moulding, or stopped in the usual way and distempered. Wallpaper adheres to the material exceedingly well. For ceilings, the sheets can be nailed on to the joists direct, and the butt joints covered with wood or other moulding to form panels, or can be stopped and distempered, or papered. These sheets are specially useful where quick alteration is required.

*Address:* 3, 5, and 7, Sheppy Place, Minories, London, E. *Telephones:* Avenue 3682 and 3143.





Floor, Beam, and Column Construction.

JOHNSON'S LATTICE AND "KEEDON" SYSTEM.

Richard Johnson, Clapham, and Morris, Ltd.  
Row H, Stand 173.

#### *Reinforced Concrete and Reinforced Brickwork.*

Here are displayed this firm's Lattice and Keedon system of reinforced concrete construction, and their Bricktor system of reinforced brickwork. Models are exhibited to demonstrate the reinforced-concrete system; and samples of Steel Wire Lattice, as supplied for the construction of reinforced concrete floors in important buildings, are exhibited.

Attention is specially directed to an improved type of lattice, in which the wires where they cross are securely fixed together by a special form of link. Of this material 26,000 yards are at present being used in the construction of the New No. 8 Dock Transit Sheds for the Manchester Ship Canal Co.

The advantages claimed for Steel Wire Lattice for concrete floors are the ease with which it can be handled and fixed, the continuity of bond (the material being made up to 200-ft. lengths), and its low cost. The wire used in its construction is of special strength, thus allowing of a minimum depth of slab being adopted, and thereby saving space and dead weight of concrete.

The system of reinforced brickwork is well displayed, and examples of walls built upon this principle are exhibited. To demonstrate the lateral strength imparted to brickwork by the insertion of this reinforcement, a heavily loaded test wall, in the form of a slab supported horizontally, has been erected on the stand.

*Address:* 24 and 26, Lever Street, Manchester. *Branches:* Liverpool, Sydney, and Melbourne. *Telegrams:* Metallicus, Manchester. *Telephone:* 6437.

John Tann, Ltd. Row C, Stand 46.

#### *Safes, Strong-room Doors, etc.*

High-class security work, in safes and strong-room doors, drill-proof in every part, is a special feature at this stand, where Anchor Reliance safes of several patterns are shown, as well as various types of doors. As the risks of burglary differ, and can be graded and classified, so the means of protection are made to correspond. Accordingly, protection is offered against ordinary, intermediate, and heavy risks respectively; and there is virtually no limit (other than that of cost) to the strength of safes that can be made for the protection of "infinite riches in a little room," such

as valuable jewellery, precious stones, and bullion. The modern burglar of the "get-rich-quick" class is by way of being a scientific expert, but fortunately his utmost endeavours can be frustrated, and the means of defeating him are exhibited by Messrs. John Tann, Ltd., whose perfected inventions are the result of years of practical experience and of scientific study of design and material. Fire-resistance is also, of course, a strong point; and the firm draw special attention to their party-wall and warehouse doors, which are made on the lines of a strong-room door, with the fire-resisting chamber 4 in. thick, filled with Tann's patent steam-generating non-conducting composition. The "New Pattern" doors, with angle-frames, for party walls, hot chambers, malt-kilns, etc., overlap the frame, and are made of  $\frac{1}{4}$ -in. solid steel plates, stiffened with angle-bar stiles inside, the mode of construction giving great rigidity and preventing warping. Sliding party-wall doors, to run on wheels, are made of steel plates,  $\frac{1}{2}$  inch thick, panelled on both sides with 3-inch by  $\frac{1}{4}$ -inch bars, with wheels and running bars at top and channel bar at bottom only, and with no vertical framing.

Other exhibits of special interest are those showing the firm's system of ventilating strong-rooms. The ventilators are strongly made of Siemens-Martin steel, galvanised to prevent rusting, the same size over all as an ordinary brick, so that they are easily built into walls. To each ventilator perforated plates are fixed; and fine wire gauze, similar to that used in miners' safety lamps, effectually prevents the passage of flame through the ventilator.

Bankers' safes and jewel safes, and and bullion-room doors with steel vestibules, are also shown, as well as fire-resisting safes, safes for jewellery and for all commercial purposes, strong-rooms, plate-closet, and party-wall doors of all descriptions.

*Address:* 117, Newgate Street, E.C.  
*Telephone:* Holborn 1644.

The British Vacuum Cleaner Co., Ltd.  
Row G, Stand 142.

#### *Hand and Power Cleaners.*

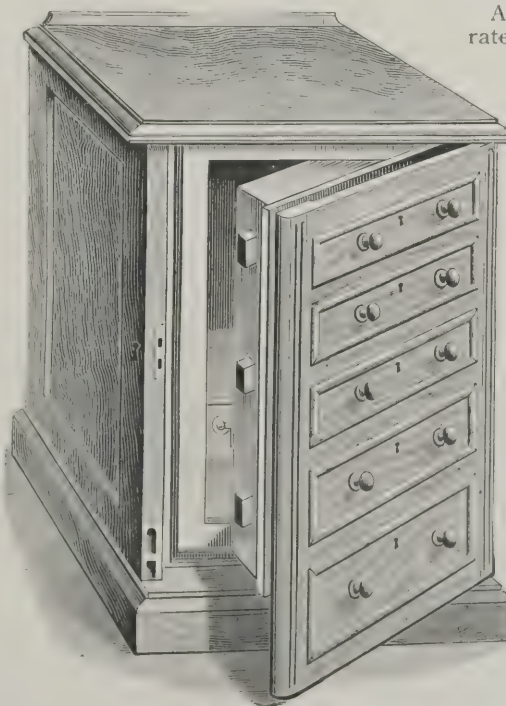
At this stand are shown a range of cleaners manufactured under the Booth master patent. They are of all types; from a 15-h.p. cleaner for very large buildings downwards.

A very excellent fixed plant at a moderate price, suitable for large country houses, theatres, etc., is the 2-h.p. Model "C.C.," and for smaller town houses, cinematograph theatres, etc., the 1-h.p. Model "E.F." should be inspected. Both these machines are fitted with the Booth patent rotary pump, and the machines represent examples of perfectly efficient vacuum cleaners.

The firm are contractors to H.M. Government Home, Indian, and Colonial Departments, and have been awarded many gold and silver medals at the great exhibitions.

A very popular line is the hand-worked cleaner, which is produced at a price which brings it within the reach of the smallest householder, who, indeed, has been quick to avail himself (or herself) of this invaluable means of thoroughly cleansing the home.

*Addresses:* Parsons Green Lane, London, S.W. (Putney 2470, Kensington 3470); 95, Wigmore Street, W. (Mayfair 3014); 38, New Briggate, Leeds (Central 3937); 9a, Trinity Street, Dublin (2370).



JOHN TANN'S WOOD CABINET, ENCLOSING SAFE.



**Bell's United Asbestos Co., Ltd.**  
Row H, Stand 168.

*Poilite Roofing Tiles and Building Sheets.*

This exhibit shows the various products of the company's Poilite works at Harefield, Middlesex.

Poilite is composed of two indestructible materials, three-fourths being the best English Portland cement, and the balance consisting of selected asbestos fibre, winnowed free from all impurities.

The works, equipped with the most modern machinery, have a capacity for producing five million square yards of Poilite tiles and sheets per annum, the finished product being many times stronger than the same bulk of pure cement. The firm's pavilion at Olympia shows the application of this fireproof material for roofing purposes and for wall and ceiling linings; and the staircases permit of visitors making a close inspection of the method by which the tiles are secured to roof-boards or battens in their various patterns—namely, Poilite standard roofing tiles, for fixing in the diagonal or Poilite method; Poilite asbestos cement building sheets; Roman Roofing Tiles (Poilite brand), an alternative to corrugated iron sheets for large plain roofs of 25 degrees pitch and upwards.

Opportunities will also be afforded to visitors of witnessing tests of tiles.

*Addresses:* 59½, Southwark Street, S.E. (Hop 4040); 199, Great Brunswick Street, Dublin; Belfast, Manchester, Newcastle, Glasgow, and Bristol.

**C. A. Peters, Ltd. Row D, Stand 56.**

*Wood Preservatives, etc.*

It is now some eight-and-twenty years since *Carbolineum avenarium* came into commercial use. Its value as a wood-preservative has therefore been long established. It is particularly useful in its application to half-timbered work, gates, fencing, sheds, stabling, etc. Some of these uses are illustrated in a pavilion which has been specially constructed at the exhibition with this object. Carbolineum, besides being a preservative, is also strongly antiseptic and disinfectant; and it renders timber immune from dry-rot and from the attacks of insects such as the dreaded white ant. As will be seen at the pavilion, Carbolineum imparts a pleasant nut-brown colour to the wood to which it is applied.

The firm show also samples of their Okin Vash instantaneous paint cleaner, which removes instantly all dirt, etc., from paint-work, varnish work, or from carpets, without injuring the article to which it is applied.

*Addresses:* Derby: 116, Newgate Street, London, E.C.; 4, Castle Street Arcade, Liverpool. *Telephone:* Holborn 1105.

**The Ironite Co., Ltd. Row J, Stand 214.**

*Patent Waterproofing Process.*

Damp walls, for a long time the despair of architects and builders, are now demonstrably remediable; and among the means for the prevention or cure of dampness is Ironite, a preparation that is very simply applied. All that is necessary is to put a small quantity of Ironite into a pail and add a little water, stir with a brush, and add more water until a thin creamy consistency is obtained, in which form it is applied. At the stand are shown tanks that have been made waterproof with this material, and its application to cement, bricks, slates, and tiles is also exemplified; a particularly interesting exhibit showing how effectually cement fractures can be

bonded with Ironite. The firm issue a very convincing report upon various tests of Ironite by Mr. Bertram Blount, F.I.C., who, after setting forth in detail the results of his severely scientific tests, states that "On account of the stability and inertness of the Ironite after it has become oxidised and has completed its work, it is not capable of causing any injurious action on the structural materials with which it is in contact. Its waterproofing qualities are sufficiently demonstrated by the various severe tests which are recorded in the present report, and its power of acting as a cement is an additional advantage in many cases. I am of opinion that Ironite is a material of great value for rendering structures watertight and making porous surfaces impermeable."

*Address:* S. Thornely Mott and Vines, Ltd., sole agents, 1, Victoria Street, S.W. *Telephone:* Victoria 5618.

**The Brilliant Sign Co. (1907), Ltd.**

Row J, Stand 199.

At this stand are exhibited brilliant signs and letters of all kinds, including the firm's Brilliant concave metal letter, which is largely used for window advertising; also gilt wood letters, enamelled copper, prismatic, brass, opal, crystal, and Koh-i-Noor metal letters, etc.

Various samples of brilliant fascia and stallplate work are also shown, as well as incised wood signs in various styles, and samples of hanging signs, mirror tablets, trade advertising tablets, a selection of engraved glass shields, samples of the Permenart fired-on background work and of illuminated signs for day and night advertising.

*Addresses:* 38, Gray's Inn Road, London, W.C.; Paragon Works, Uxbridge Road, W.; Branches at Manchester, Leeds, Birmingham, and many other places at home and abroad. *Telephones:* Offices, Holborn, 2101-2; Works, Hammersmith 521.

**George M. Callender and Co., Ltd. Row C, Stand 64.**

*Waterproof Sheetting, Damp-proof Coursing, Asphalt Roofing, Paints, etc.*

At this stand, an example of a reservoir rendered watertight with Callender's sheeting illustrates this system of permanently waterproofing such constructions. In the centre of the tank there is a column of loose porous bricks, under the top course of which, just above water level, is inserted a small piece of Callendrite dampcourse; and it will be seen that above the point of this insertion the bricks, though eminently porous, remain perfectly dry. Callendrite dampcourse is supplied in rolls 24 ft. long, cut to suit usual wall widths up to 36 in.

Callender's Ledkore dampcourse consists of a continuous sheet or core of specially prepared lead, covered both sides with tough but plastic bitumen. Entirely free from coal-tar or pitch, it withstands all climatic extremes; and special attention is directed to the complete unification of the lead core and the bitumen covering.

Protex damp-proofing emulsion for the cure or prevention of damp walls is applied like ordinary paint. A model shows its application to a brick surface partly rendered with plaster and partly covered with wall-paper. Water jets play constantly on the other side of the brickwork, but neither plaster nor paper shows the slightest symptom of dampness; the absolute effectiveness of Protex as a damp-resister being thus conclusively demonstrated.

Samples are also shown of Callender's Bitusol paint for iron and steel work;

rock mastic asphalt for vertical and horizontal dampcourses, flat roofs, footway tennis-courts, reservoir linings, etc. asphalt-limestone paving for courtyard and school playgrounds; natural asphalt roofing; and Bitubond building composition, which, poured hot into cavities formed by two brick or stone walls, searches and fills every interstice in the inner wall faces, adding considerably to the strength of the wall, and rendering it impervious and non-conducting.

*Address:* 25, Victoria Street, London S.W. *Telephone:* Victoria 4642.

**The Willesden Paper and Canvas Works Row F, Stand 113.**

*Underslatings, Underlinings, etc.*

Messrs. The Willesden Paper and Canvas Works are showing their usual old-established lines of underlining and underslating Willesden paper in varying thicknesses for the several purposes for which they are employed—1-ply, 2-ply, and 4-ply paper.

They are also showing a set of Willesden paper polo goal posts. They practically hold the world monopoly for the supply of these.

Panels of the various qualities of "Genuine" Willesden canvas in varying thicknesses and colours are shown round the stand, and the firm are again exhibiting several of their model tents, to enable buyers to form some opinion of the design and appearance of the completed article.

*Address:* Willesden Junction. *Telephone:* Willesden 1165.

**Sissons Bros. and Co., Ltd. Row F, Stand 109.**

*Distemper, Paints, Enamels, and Varnishes.*

This stand represents two apartments of a Georgian mansion, the dimensions being 20 ft. by 20 ft. and 20 ft. by 15 ft. respectively. The structure, both by design and arrangement, serves admirably the purpose of giving practical illustrations of the scope of Hall's distemper, and of the variety of enamels, varnishes, paints, etc., manufactured by this firm. The interior decorations are Georgian throughout. The colour scheme is green, white, and pink, the effect being rich and dignified. The large panels serve to show Hall's distemper in the treatment of expansive flat areas, while the decorative portions display the unlimited scope and utility of this material for the most elaborate work. The dentil pattern cornice and frieze are an effective combination of white and cream-coloured Hall's distemper. The enriched ceiling is a tasteful design in Georgian panel work, the centre being a leaf wreath forming a circle 9 ft. in diameter.

The smaller room serves for the display of numerous specialities of the firm. On shelves round the room are:—A perfect paint, Sisco white Japan enamels, Sisco mixed paints, Rustikol, Sunphas red, and varnishes. The walls are treated in white Hall's distemper.

The exterior walls are panelled and decorated with floral pendant and festoon mouldings, which serve to exemplify the tints of this distemper, a rainbow-like selection from the seventy shades in which Hall's distemper is made being shown.

The panels in the north door, which have polished mahogany mouldings, are treated with Orientolac white enamel. The decorated pillars at sides are in flat enamel, and the over door, which reaches almost to the top of the façade, shares the same treatment.

*Addresses:* Hull, and 199b, Borough High Street, S.E. *Telephone:* Hop 468.



**Candy and Co., Ltd. Row F, Stand 114.***Devon Fireplaces.*

At this stand is shown a selection of Devon fireplaces in briquette, faience, and tile work, showing effects in dull eggshell and bright glazes. Specimens of wood chimney-pieces in polished mahogany, fumed and wax-polished oak, and pine, also wrought hand-made metal interiors, further enhance an altogether attractive and artistic display.

The Devon fires have secured the highest approval of H.M. Office of Works and the Smoke Abatement Society in official tests, and have also achieved signal success in popular competitions held in connection with the Ideal Home Exhibitions. Specimens of buff granite vitrified paving bricks, buff "White City" paving tiles, and buff quarries, as used by H.M. Office of Works, War Office, and Admiralty, are also on view at this stand, as well as specimens of white and coloured glazed bricks and tiles (guaranteed leadless glaze).

*Addresses:* Showrooms, 87, Newman Street, Oxford Street, W. (Telephone: Central 13585). Works, Heathfield Station, near Newton Abbot, South Devon (Telephone: Newton Abbot 28).

**W. Edgcombe Rendle and Co., Ltd. Row H, Stand 175.***Patent Glazing System.*

Rendle's Invincible system of glazing, which is extensively used in all parts of the world for railway stations, goods sheds, swimming baths, and every kind of roof requiring top lighting, consists of a metal channel bar (either copper or zinc), drawn in one piece, on which the squares of glass rest, these being held in position by a cap of similar metal placed over the joint and secured by screw bolts and nuts placed about 12 in. apart. This bar, when mounted on a moulded wood core, is very strong, permitting squares of glass about 10 ft. long being used, and is even more durable than iron in positions subjected to sulphur fumes and the destructive influence of the atmosphere generally. The bar has a large central channel, down which any water that may find its way out under the cap passes out to the square below; and on each side are formed condensation channels which carry off the condensed moisture in similar manner. The moulded wood cores assist in binding the roof together, and have a light, though at the same time substantial and pleasing, appearance from below.

Among the important buildings in which the system has been adopted are the following: New terminus at Waterloo; new

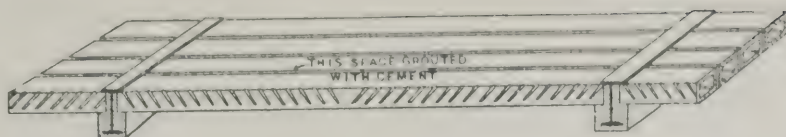


DIAGRAM SHOWING CONSTRUCTION OF SIEGWART FLOOR.

cargo sheds at Immingham Docks, for the Great Central Railway; new cargo sheds, Southampton Docks, for the White Star Steamship Co.; Lambeth goods sheds; carriage sheds, Old Oak Common, for the Great Western Railway; new sheds at Lancing for the London, Brighton, and South Coast Railway; extension to Broad Street Station for the London and North-Western Railway; Baker Street Station for the Metropolitan Railway; new tramway sheds for the Leicester Corporation; the new Victoria Station of the London, Brighton, and South Coast Railway, where the whole of the roofs and screens are glazed on Rendle's patent Invincible system without putty; and the same system is employed on all the roofs over courts, galleries, and domes of the Victoria and Albert Museum at South Kensington.

*Address:* Westminster Chambers, 5, Victoria Street, S.W. (Telephone: Victoria 3213; Gerrard 701).

**The Ruberoid Company, Ltd. Row G, Stand 152.***Ruberoid System of Roofing.*

This firm's stand occupies a site in the centre of the hall, on one of the main aisles, and is itself worthy of notice for its refinement and simplicity. The exhibit comprises full-size models showing the practical application of Ruberoid roofing on flat and pitched roofs. The details of fixing, which are of particular interest, are fully shown on these models.

The Ruberoid system of roofing is easily applied to curved surfaces, and is durable under extreme conditions of climate; and, developed by the twenty-one years' practical experience of the manufacturers, it has been specified on many recent important works. Some 130,000 square feet of this roofing was used by Messrs. Lever Bros. on their works at Durban, Natal, South Africa, whilst the portable buildings which were taken to the Antarctic by the Scott Expedition were built of identically the same material. Messrs. Lever Bros. have also employed Ruberoid for the roofing of their extensive factories in Cape Town, South Africa, and Japan. At home Ruberoid has been put to varied and extensive use.

Samples of the Ruberoid dampcourse are also shown.

The firm's Giant insulating papers are also fully displayed, this exhibit making a special appeal to all who are interested in the cold storage problem.

A large collection of photographs of buildings roofed on the Ruberoid system is displayed, and they range from the largest modern factory buildings to bungalows.

In view of the present interest in sanatoria work, it is worth remarking that Ruberoid has been used for roofing the buildings at Crooksling, Co. Dublin (4,000 yards), Peamount, Ireland (1,000 yards), Motherwell, etc.

*Address:* 81-3, Knightrider Street, London, E.C. Branches in Leith, Dublin, and Newcastle-on-Tyne. (Telephone: Central 1480).

**The Siegwart Fireproof Floor Co., Ltd. Row A, Stand 6.***Siegwart Hollow Floors and Roofs.*

At this stand the exhibits consist of hollow Siegwart flooring for 15-ft. spans and of Siegwart roofing supported on steel-work. A portion of a sloping roof, of the large Mansard type, is also shown. The great advantage of Siegwart beam construction over *in-situ* concrete is that no centering is required. The delay of other trades, caused by the propping having to remain in position until the *in-situ* concrete is set, is completely avoided. The beams are delivered to the site in a thoroughly matured condition ready for fixing. The method of fixing is very simple, the beams being placed side by side on the supporting walls or steel joists and the joints grouted in with cement mortar when the floor is ready for use. We reproduce a small diagram showing the method of construction.

*Address:* Thanet House, 231, Strand, London, W.C. (Telephone: Gerrard 4094).

**E. G. Wright. Row B, Stand 21c.***Cowls and Ventilators.*

Mr. E. G. Wright's King chimney cowl, ingeniously constructed so that the baffle-plates convert a down-draught into an up-draught, and thus get good out of evil, is here on exhibition in various sizes and



PORTION OF NEW TERMINUS AT WATERLOO, GLAZED ON RENDLE'S SYSTEM.



STAND OF THE RUBEROID COMPANY, LTD., AT OLYMPIA.



materials, and its efficiency is convincingly demonstrated by practical experiments at the stand. This exhibitor is also showing his patent separate-room ventilators and improved self-acting ventilators, both of which systems, we understand, are extensively and most successfully employed.

Address: "The Hut," Guildford, Surrey.

**Walter Carson and Sons, Row K,  
Stand 227.**

*Paints and Enamels.*

At this stand one of the most striking exhibits is that of work from Arnos Grove Estate, Southgate, illustrating the long life of Carson's original anti-corrosion paint.

This stand, however, is, of course, chiefly occupied with the productions of to-day. Walcarite is a non-poisonous white paint ground in oil ready for use. The claim is made for it that it is superior to white-lead in colour, covering power, and durability. It is equally applicable to inside or outside work. Vitrolite is an exceedingly popular greenhouse paint. It is suitable for both inside and outside use, and supersedes white-lead for all classes of work. Coverine is a remarkable flat white undercoating, said to be twice as dense as white-lead. Japolite is an elastic, brilliant, and durable Japan white for the highest class of external and internal decoration. It has great covering power and flows well under the brush, leaving a brilliantly smooth surface. It is also supplied flat. The firm's flat decorative Japan is recommended as being specially suitable for use in hotels, restaurants, public buildings, etc. La Belle Enamels are stocked in thirty-two artistic shades, and the vendors advocate the use of this enamel for the final coat when a high-class finish is required. Muraline washable water paint is supplied in a dry powder. It dries with a "flat" surface, is of pleasing appearance, and is economical in cost. Maurice's porcelaine, of which Messrs. Carson are the sole proprietors and manufacturers, is well known as an enamel suitable for high-class decoration. It is made in fifty colours, and a special quality for baths is made in six tints.

Address: Grove Works, Battersea, S.W.  
Telephone: Battersea 1630.

**Ransome-verMehr Machinery Co., Ltd.  
Row K, Stand 219.**

*Concrete and Other Mixers, Interlocking Piling, Continuous Filters, etc.*

This company exhibit a number of their mixers, including a particularly compact and portable equipment with direct-coupled petrol engine, a type now largely in use for street work, the machine exhibited being similar to two recently supplied to the Bradford Corporation for this class of work.

In addition, samples of the Ransome Interlocking Piling are shown—a section in very great demand at the present time, more than 500 tons being in use at the Rosyth Naval Base, and 1,000 tons in connection with the new Port of London Authority dock improvements. This is an extremely economic pile section which combines light weight with high strength.

The Ransome Patent Stone Dryer is one of the company's latest introductions, comprising entirely unique features, which ensure rapid and uniform drying of stone required in the production of tar-macadam. Another entirely novel form of apparatus is the Ransome Pile Extractor, designed exclusively for the extraction of any class of timber, steel, or concrete pile. The machine exhibited is similar to a number at the present time in use at the Rosyth Naval Base.



RANSOME INTERLOCKING PILING IN NEW WEIR AND SLUICE, GODSTONE.

On the company's stand in the gallery is exhibited a small model of a Ransome Continuous Filter, an invention for which it is claimed that it is effecting tremendous economies in connection with pressure filtration. The model represents on a small scale, with minor differences, actual full-sized filters, one of which, 8 ft. in diameter, is at the present time being erected at the Metropolitan Water Board Works at Hampton; and the model represents the principle employed in three 10-ft.-diameter filters, having a capacity of one million and a quarter gallons per day of twenty-four hours, at the present time under construction for the Merthyr Tydfil Corporation.

The attention of architects engaged in the design and carrying out of public buildings and supplies is especially directed to this new continuous filter, which is constructed in sizes capable of dealing with from 3,000 to 330,000 gallons per twenty-four hours, the small filters being admirably suited for domestic and country house supply in isolated districts.

The accompanying illustration shows the Ransome inter-locking steel piling in use during the construction of a new weir and sluice at Godstone. The photograph is of particular interest as showing the adaptability of the section for small as well as large dam construction, combining economy with efficiency.

Office Address: Brunswick House, Westminster. Telephone: Victoria 2188.

**Nostell Tile and Terra-Cotta Works. Row J, Stand 208.**

*Terra-Cotta and Constructional Faience.*

At this stand the special feature is an attractive array of marble and antique glazed tiles. Roof, floor, and wall tiles are shown in great variety, and the faience fireplaces are exceedingly tasteful in design, as well as beautiful in the materials of which they are constructed. For appropriate types of interior they are an ideal fireplace, and all the exhibits on this stand have the good fortune to meet exactly the rapidly growing demand for cleanly and comely appointments inside the dwelling,

as well as that for an artistic exterior. Constructional as well as decorative value is observable in this display, and although the two qualities ought always to coincide, it is seldom that they are found so nicely in agreement as they are here seen.

Address: Nostell, near Wakefield.

**Pinchin, Johnson and Co., Ltd. Row G,  
Stand 150.**

*Paints, Stains, and Varnishes.*

This stand takes the form of a Temple of Minerva, and consists of four sets of double columns, supporting a circular entablature and dome, the whole being surmounted by a designed cupola. It is entirely finished with Satinette enamel—gloss-white and flat-white—with the exception of the dome, which is gilt. The columns are given a perfectly white, smooth, and lustrous surface with Satinette enamel, which is further seen upon a panelled section of wall and a door, where gloss-white and flat-white are contrasted.

Minerva Paint is shown upon a revolving exhibit. Primer, opaque-white for undercoats, gloss-whites, and flat-white for finishing are displayed in the order of application, together with a specimen of each of the twenty-four standard colours or stainers, and the ninety-six proportionate reductions obtained therefrom by simply adding certain quantities of gloss-white.

Deydol Distemper, a washable water paint, is shown in a complete corner scheme by itself, as well as upon the plaster panel walls of the office.

Veritone stain and scumble is shown as a stain on pitchpine panelling. The panels are finished with Minerva flat varnish, while the stiles and rails are in Minerva brilliant varnish. Several panels show also Veritone used as a scumbling or graining colour for a ground coat.

Minerva varnishes, Silveroid (a silver paint), Syronite (rust preventive), and other specialities are also to be seen.

Address: Minerva House, Bevis Marks, London, E.C. Telephone: London Wall 9916.



**"Ronuk" Ltd. Row F, Stand 116.****Ronuk Sanitary Polish.**

This stand, which is designed to illustrate in a practical manner the advantages to be gained by the use of Ronuk Sanitary Polish in the treatment of woodwork of every description, and the superiority of the results as compared with those obtained by ordinary wax polishing, is constructed entirely of oak, including the four handsome columns supporting the cornice and ceiling beams. One side only is closed, and is filled in with oak panelling. The remaining three sides are open, and it is thus possible to see the effect of the Ronuk treatment on the oak block flooring, which is fully exposed to view.

The whole of the woodwork has been prepared and polished with Ronuk by trained workmen of the company's polishing contract department.

Ronuk fills up the pores of the wood to which it is applied, so that a hard, bright, durable, and thoroughly sanitary surface is formed, which can be cleansed and kept in order with little labour and at small cost; scrubbing, and the dampness and general inconvenience therefrom resultant, being entirely dispensed with. Floors of ordinary deal may be converted into polished floors by the use of Ronuk special staining, followed by the application of Ronuk sanitary polish. The many important institutions in which Ronuk-polished floors are maintained by contract include the National Gallery, National Portrait Gallery, and Tate Gallery, Manchester City Art Gallery, and most of the great London hospitals. Exceptionally elegant booklets to be had at the stand give full particulars of the firm's specialities, including Hospital Ronuk (concentrated and liquid), special staining oil-stopping, polishing cloths, pumice powder, floor-polishing brushes, steel shavings, and wool, etc.

*Addresses:* Portslade, near Brighton; 16, South Molton Street, London, W.; 285, Deansgate, Manchester. *Telephone:* Gerard 3470.

**Mellowes and Co., Ltd. Row G, Stand 160.****Sanitary Fittings, Heating, and Plumbing.**

This firm are specialists for high-class sanitary fittings, embracing white-glazed fireclay and earthenware, porcelain enamelled iron, and various marbles of fine colouring and finish, while the fittings of gun-metal and brasswork are really ornamental as well as useful.

In conformity with the latest hygienic requirements, hidden joints and sharp angles have been reduced to a minimum. This is particularly observable in the earthenware and fireclay goods, where the entire absence of sharp recesses and angles excludes all possibility of harbouring dirt. Deserving of particular notice is a clear glass lavatory with a special waste, the component parts being easily and entirely removed without the aid of tools for thorough cleaning.

In the nicely-tiled model bathrooms exhibited, this firm have co-operated with Messrs. Chance Brothers, of Birmingham, who have supplied and fixed all the tile-work in record time.

Messrs. Mellowes recognise that all classes of the public should be catered for, and on their stand therefore are to be seen inexpensive fittings suitable for the cottage as well as luxurious appliances similar to those which they have recently supplied to an Indian rajah's palace.

This firm are always ready to make fittings specially in accordance with architects' own designs, every attention being given to the minutest detail. Besides carrying out contracts for the Admiralty, War Office, and His Majesty's Office of Works, L.C.C., etc., they have installed fittings in several of the leading hotels and public institutions, mansions, etc.

*Addresses:* 28, Victoria Street, S.W. (*Telephone:* Victoria 4568-9), and at Sheffield.

**The Non-Explosive Gas Co., Ltd. Gallery, Stand 24.****Lighting, Cooking, and Heating Apparatus.**

The Airalite, described as an inexpensive, compact, portable, self-contained machine, having very few working parts, for the generation of air-gas of an absolutely uniform and intimate mixture of air and hydro-carbon vapour, is shown in operation at this stand. It is stated that more than 1,000 cubic feet of gas is generated by this machine from one gallon of petrol of specific gravity .695, and that, all petrol placed in the apparatus being vapourised, air-gas is a most economical illuminant; the gas costing, at the present average price of petrol, about 1s. per 1,000 cubic feet. The gas burns with a soft but brilliant light through special burners and incandescent mantles. Besides lighting, this gas is eminently suitable for cooking and heating, as it can be made to burn with an intensely hot blue flame. The

engine is actuated by a burner consuming gas generated by the Airalite itself, so that the machine is in a peculiar sense self-contained.

*Address:* 5, South Street, Finsbury, E.C. *Telephone:* London Wall 3907.

**William Oliver and Son. Row A, Stands 4 and 5.****Hardwood and Other Timbers.**

Always distinguished by the extent, variety, and quality of their exhibits at Olympia, Messrs. Oliver have upon the present occasion by no means gone back on that excellent record. Genuine Austrian wainscot oak being admittedly scarce and difficult to obtain, this firm are making a special exhibition of genuine specimens of that fine wood in all thicknesses. Two large stacks of this material are shown, and Messrs. Oliver announce that they hold an extensive stock of it. An interesting, not to say instructive, feature at this stand is a miniature timber yard showing how the timber is stacked for seasoning.

*Addresses:* 120, Bunhill Row, E.C., and 114, East Ferry Road, Millwall, E. *Telephones:* Central 3746 and London Wall 1339.

**McDowall, Steven and Co., Ltd. Row B, Stand 14.****Ranges, Boilers, and Fireplaces.**

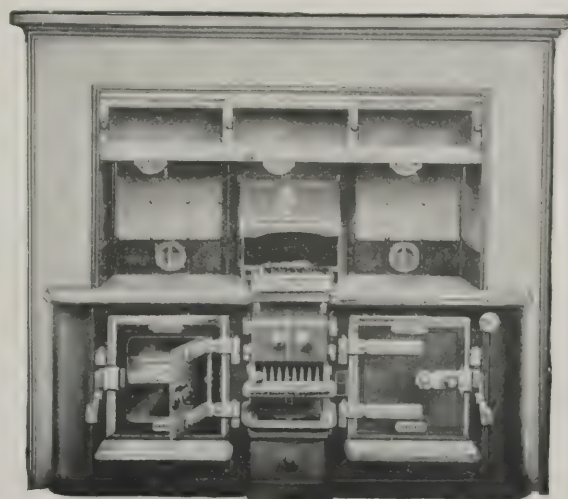
An example of the Lion range is shown in action in conjunction with a bath, demonstrating the efficiency of the Lion type of boiler in maintaining a continuous and an abundant supply of hot water, the flues being so arranged that they cannot become choked. The range is shown in various styles and sizes, and it is claimed that it combines all the merits of the modern kitchener with the addition of several patented improvements. By means of patent soot-receiving shelves under the ovens, the flues can be thoroughly cleared of soot. Other noticeable items are an inner glass door to the oven; a pedal release to the oven doors; a swing fire front, and an improved raising and lowering bottom grate. The flues of the range are of cast-iron and self-contained.

Very interesting also are the examples of Old-English sandfaced brick fireplaces. The fronts and hobs are slabbed in pieces of convenient size, a system that obviously saves the architect much time in supervising.

*Address:* 4, Upper Thames Street, E.C. *Telephone:* City 1234.



A MELLOWES LAVATORY.



LION PATENT RANGE (MCDOWALL, STEVEN AND CO., LTD.).



**Vulcanite, Ltd., Row E, Stand 105.****Patent Roofing, Dampcoursing, etc.**

Vulcanite is described as a bituminous, hornlike, and elastic substance, which, while retaining its elasticity permanently, assumes in course of time a metallic hardness. It offers hermetic resistance to water, dust, smoke, soot, snow, etc., and when laid as a flat roof in accordance with the system recommended by the firm, is so completely fireproof as to have obtained the approval of the fire insurance offices as a fire-resisting roofing of the first order, the layer of gravel or soil affording protection against burning objects, and the hermetically closed roof offering the greatest possible resistance to the spread of fire. The Vulcanite roof, when completed, presents a flat surface without seam or joint, and requires no drips nor rolls. Some of the advantages claimed for this system of roofing are the following:—Economy—the outlay on timber and labour being greatly reduced, costly framework and high gable walls being rendered superfluous where the roofing is flat; and, lateral thrust being absent, the supporting walls may be less substantial; while the boarding immediately under the roof may serve as a ceiling. The material is not subject to climatic influences, and the rooms beneath retain in summer and winter an even temperature. The roofs may be used as bleaching or drying grounds, flower-gardens, playgrounds, etc. Being flat, the roofs cannot be damaged by storms. Access to flues, lightning conductors, flagstaves, and the like, is obtained easily and without damage to the roof, which, being of elastic material, also withstands any slight settlement, the expansion and contraction of iron and concrete, and the vibration of heavy machinery or passing trains.

The firm show also their Rexilite roofing, which is recommended as an economical covering for concrete flats, and for sloping roofs of light buildings. It is described as a fibrous sheeting, impregnated and covered with pure bitumen. Of light weight and easy application, it can be used for making waterproof defective asphalt and cement flats.

The Bituna pure bitumen damp-proof course, of which also samples are shown, is of pure bitumen carried on light canvas. Vulcanite Sheet Asphalt for damp-coursing is a fibrous sheeting impregnated with damp-resisting composition and sanded. It is described as a durable material impervious to moisture, and it will not squeeze out of the footings owing to the weight imposed upon it, nor run in consequence of climatic heat.

Leatherite and other roofing felts, bitumen sheetings for sarkings, Mailon non-inflammable bitumen solution, etc., are also exhibited, as well as several specialties—such as the Reliance brand of lead and bitumen dampcourse, and Standard asphalt—formerly exhibited by another firm whose business has been acquired by Messrs. Vulcanite.

Addresses: 118, Cannon Street, E.C.; also Belfast, Manchester, and Newcastle. Telephone: Bank 5532.

**D. Anderson and Son, Ltd. Row F, Stand 133.****Roofing Specialities, Dampcourses, Wood Preservative and Anti-Corrosive Paint.**

This firm are showing and distributing samples of their Rok and Rokalba roofing, Sanodor felt, bituminous hair-felt, Stoniflex felts, and Zerolite insulating papers, and are also exhibiting samples of their Siderosthen anti-corrosive paint and Sideroleum wood-preservative.

Rok roofing, made specially for Greater Britain, India, and tropical countries generally,

is vermin-proof, does not taint water, and withstands the most exacting climatic conditions. It also makes an admirable damp-proof course. It is made in various thicknesses, from half-ply to three-ply; the former being suitable for sarking, lining, or temporary work, the latter for good buildings, where the roof is subjected to severe climatic conditions. Intermediate sizes suit farm buildings, bungalows, or factories. Rokalba is a fire-resisting material, having an asbestos finish, and made in three thicknesses. The bituminous hair-felt is an excellent waterproof and vermin-proof and non-conducting material for lining roofs, walls, floors, and partitions. Sanodor felt is for similar purposes, but is innocent of smell. Stoniflex is made in three grades, for roofing, sarking, and lining, respectively. It is recommended as being exceedingly durable, permanently pliable, light as to weight, and proof against the white ant. Zerolite insulating paper, for cold stores and all places where permanent insulation is required, is odourless, is rot, water, and vermin-proof, and unaffected by acids or alkali fumes. Sideroleum wood-preservative is applicable also to stone and brickwork. It renders sappy wood hard and rot-proof, and is of an agreeable nut-brown colour. Siderosthen is a rust-preventing solution for iron, steel, and zinc, resisting all acid fumes, and unaffected by sea-water.

Addresses: Lagan Felt Works, Belfast (Telephones: 4033-4); Roach Road, Old Ford, E. (Telephone: East 3214).

**The Electric Hose and Rubber Co. Row B, Stand 21m.****Pneumatic and Garden Hose.**

This firm are exhibiting all kinds of hose for pneumatic and garden purposes. The hose is made in continuous lengths of from 500 ft. to 1,000 ft., and it is a great convenience that each foot is marked. Hose is now used for such a variety of services besides those indicated that this exhibit assumes considerable interest and importance at the present time.

Address: Caxton House, Westminster.

**John Bolding and Sons, Ltd. Row J, Stand 206****Sanitary Appliances.**

Notable among the fine show of baths exhibited at this stand are the Keyhole Laydas cast-iron rolled-edge spray bath, porcelain enamelled inside and outside, with plated fittings for spray, wave, shower, and plunge, quick waste valve, trap, and plate-glass screen; a dish-d Sicilian marble pad bath; a Hanover cast-iron equal-ended rolled-edge bath, with flat 5-in. roll, porcelain enamelled inside and outside, and plated fittings; a Sicilian marble pad with 3-in. channel; a Kenon cast-iron parallel rolled bath, porcelain enamelled inside and outside, with soap trays cast in, plated fittings, 2½-in. porcelain enamelled cast-iron trap; an Erno cast-iron parallel rolled-edge bath; with soap trays cast in, porcelain enamelled inside, painted outside, with plated fittings and 2-in. glass enamelled trap.

An interesting collection of lavatories includes the Wigmore, the Skyrall, the Trone, the Valdor, the Kenon statuary angular bracket lavatory, with frieze plated fittings, and others.

The water-closets comprise the Berkeley pedestal valve w.c., with trap above floor, white earthenware enclosure and flushing cistern to pass the Metropolitan Water Board; the Laydas syphonic pedestal w.c., with slop-top, head trap discharge pipe, white earthenware tranquil flushing cistern, and mahogany seat, and others.

White, glazed, and teak sinks, bathroom accessories, etc., are also displayed.

Address: Grosvenor Works, Davies Street, W. Telephone: Gerrard 9630-1; Mayfair 818.

**The British Ceresit Waterproofing Co., Ltd. Row J, Stand 210.****Ceresit Waterproofing.**

The exhibit of this firm includes the following:—(1) A small revolving model of a house, standing in water and washed over with water by means of pipes attached to the building. A facing of Ceresit-cement-mortar on the outside keeps the interior absolutely dust dry. (2) Two large glass cylinders containing water with bases consisting of slabs of Ceresit-concrete, which, notwithstanding the tremendous pressure per square inch, remain dust-dry. (3) Small buckets divided into two sections, one constructed of Ceresit-cement and the other of ordinary cement, and containing water. The part made of Ceresit-cement remains dust-dry; the other lets through the damp. (4) Pictures from all parts of the world of buildings in the construction of which this preparation is used. (5) Samples of Ceresit.

Ceresit is a cream-white paste of the consistency of butter. Added to water in the proportion of one to twelve, it mixes immediately with the water, which turns to a milky-white fluid. This, used precisely as is ordinary water in mixing cement, mortar, or concrete, makes the latter completely proof against the penetration of moisture or water, even under heavy pressure of upwards of 70 lbs. per square inch. Ceresit cement is without smell, and therefore has no deleterious effect on foodstuffs and other perishable goods stored in cellars where it is used. It is outwardly undistinguishable from ordinary cement except by its rather lighter colour. It is also sufficiently elastic to contract and expand under varying extremes of temperature, and accordingly cannot be damaged by the air or frost. It does not peel off and so never needs renewal. It adheres firmly to all sorts of walls and can be painted soon after it is dry. Ceresit insulating mortar is used exactly as is ordinary mortar. No special skill is required in mixing it; the contractor's own workmen mix and apply it. And it is suitable for all structures of brick, stone, or concrete. This mortar, it is claimed, wholly prevents dry-rot, mould, fungus, peeling, sweating, etc., and is therefore invaluable for interior walls.

Reinforced concrete may be waterproofed by using 1½ gallons of Ceresit per cubic yard at an added cost of 7s. 6d. per cubic yard. Tests made by Mr. Bertram Blount, F.C.I., show that no appreciable action on the strength of concrete either in compression or tension is made by the addition of this material; and he has also shown that the use of Ceresit-concrete for reservoirs has absolutely no deleterious effect on the water contained in them. Further, the National Physical Laboratory, Teddington, reports that slabs of Ceresit cement 1¼ in. thick subjected to a continuous water pressure of 4.34 lbs. per square inch showed no sign whatever of dampness on the under surface after nine months' test when their report was made; whereas slabs of cement made without Ceresit, but otherwise entirely similar, were found to be saturated in a few hours, with large drops of water suspended from the under surface.

Ceresit is used by H.M. Office of Works and other Government Departments; by the Metropolitan Asylums Board; and by many public bodies and railway companies (including "Tubes").

Address: 68, Victoria Street, S.W. Telephone: Victoria 3618.



THE  
ARCHITECTS' & BUILDERS'  
JOURNAL.

Wednesday, April 23, 1913.

Volume XXXVII. No. 954.

No. 30.



*(From Piranesi.)*



ST. WILFRID'S CHURCH, DUCHY ROAD, HARROGATE. TEMPLE MOORE, F.R.I.B.A., ARCHITECT

The chief feature of this church, externally, is the excellent grouping of its parts.



# THE ARCHITECTS' & BUILDERS' JOURNAL.

APRIL 23, 1913.

CAXTON HOUSE, WESTMINSTER.

VOLUME 37. No. 954.

## The Trend of Theatre Design.

MR. FORBES-ROBERTSON, in his speech at his "farewell banquet," remarked upon the extraordinary multiplication of theatres that has occurred during his stage career of some forty years or so. His reference was to playhouses proper, and not to those other places of entertainment which nowadays come into the category of variety theatres, but were formerly classed under the stridently inept title of "music-halls." For him "the play's the thing," and it was no concern of his to show how inevitably one class of entertainment reacts on another, and how, by consequence, your "home of the legitimate drama" and your pavilions, palaces, coliseums, hippodromes, cinemas, and what not, must necessarily assume also a sort of general family likeness in their merely physical conformation. Formerly the alleged music-hall and the theatre were "scarce cater-cousins"; they are now cousins-german, all catering for pretty much the same public; the playgoers and the "music-hall habitués," as they were called in Victorian times, being no longer sharply divided.

It is true that the theatre proper and the variety theatre will always be invested each with its own distinguishing characteristics in design and decoration; but that is not the point. What is plainly evident is that the one will in many respects simulate the other at least as closely as Shakespeare and Burbage's Globe Theatre on Bankside imitated the bull-baiting and bear-baiting rings which were its near neighbours.

How to preserve and express the distinction without over-emphasis, how to accommodate both Thespis and Thalia, and how to steer safely between sumptuousness and severity, is a problem to which architects are just now addressing themselves with unwonted zeal. And it becomes ever clearer that the solution demands more architecture and less upholstery. During the past decade, or even for a much longer period, theatre design has been resigned to the hands of a few specialists, who, on the whole, can be said to have done indifferently well; but now, "lest one good custom should corrupt the world," such work is being more widely distributed—with how great an architectural advantage has been made plainly apparent by examples which have been recently illustrated in this journal.

James Fergusson, writing some time in the 'sixties, gave a little air to one of his many fads when he said that "theatres alone have escaped—in their internal arrangement, at least—from the influence of the copying school"; but if his passing sneer was gratuitous his main contention was not wholly vicious. "It is true," he goes on, "that when permanent theatres first came to be erected in modern Europe, Palladio did build one at Venice, and Serlio another at Vicenza, according to the precepts of Vitruvius; and, in the last days of his career, the former architect designed the celebrated Teatro Olimpico at Vicenza, which still stands a monument of his classical taste, and boasts of being the oldest permanent theatre in Europe, at least of those built since the times of the Romans. It was also the last of its race, for, though Classiciality or

Mediævalism may do very well for churches, managers of theatres are in earnest, and their audiences insist on both seeing and hearing what is going on, and will not be content with being told to sit behind a pillar where nothing can be seen, or under a roof where every sound is lost." Hence it is, he infers, that "modern theatres"—modern in his time, but how ancient for us!—"so far at least as concerns their internal arrangements, are the only important buildings in modern times designed wholly without reference to precedent, and regarding which our architect really must think what is best to be done, and how he can best do it." One can see his smirk of satisfaction at being able to deal with theatres "as if they were the works of reasoning men and not the products of copying machines." It is clear that when Fergusson gets astride of his hobby-horse his reputation as one of the "reasoning men" suffers somewhat from the jolting. Apparently he did not, in his haste, perceive that when once his "reasoning men" had thought "what was best to be done," and had settled on what seemed to them to be the best method of doing it, the "copying machines" would infallibly get in their deadly work.

That is precisely what has happened. Since Fergusson's time, the "cantilever principle" having become cardinal, the internal pillar is no more seen except as an archaic survival: but the theatres from which it has been mercifully eliminated have become appallingly conventional in form and feature. A good type having been once settled upon, violent departures from it are out of the question; they would be as disastrous as are invariably the occasional desperate and futile attempts to escape as far as possible from classicism in the detail or, indeed, in the elevation; but, nevertheless, as one grows weary of having to say so often, adherence to type and tradition does not by any means imply slavish and timorous literal copying. In the matter of construction, no one would for a moment dream of accusing a man of plagiarism or piracy, or of a want of originality or resourcefulness, because he selected and laid brick or stone, or formed trusses and joints, in accordance with approved practice. He would only be blamed if he selected his materials and methods without judgment or discretion, without adaptation and adjustment to the immediate purpose in view. He would, indeed, be roundly taken to task for the risks so obviously involved in any daringly original departure from established precedent, because in his case the dangers of innovation would be gross and palpable. It is only because, in the art as distinguished from the science of building, the unaccredited innovation does not seem likely to bring the edifice tumbling about our ears that it is so easily tolerated, and even applauded for its supposed originality, when that is in truth merely some fatuous departure from sound tradition.

For it is to be supposed that at this present stage of civilisation no new forms remain to be discovered. In this respect we cannot go beyond the suggestions of Nature, nor can we hope to go much beyond the cunning of the ancients—meaning more especially the Greeks—in conventionalising and assembling natural



forms. Our only hope of attaining to or per chance excelling the mastery of the ancients resides in close scrutiny of what they so superlatively achieved, the object of this study being to imbibe what we may of the true spirit of art, and to adapt or apply—judiciously, not slavishly—to our own modern needs and circumstances the unsurpassable shapes and patterns which the ancients have discovered and recorded. Provided only that this is done in the right spirit, to call it copying were slanderous. It were as just to accuse the builder of copying because he gets his stone from an approved quarry, or the writer of being sterile and uncreative because he makes use of the alphabet and the dictionary. The true test of originality is the use to which the elements are put—their composition. In selection, modification, adaptation, true art may be manifested and vindicated. We are glad, therefore, to note that there are at the moment distinct signs of a return to Classical models in the design and decoration of the more recent theatres in this country. It is little less than a harking back to first principles that for a time had been unduly neglected; and the incidence of the reform is of capital importance not only because of the increase to which Mr. Forbes-Robertson ("our only Classical actor," as Mr. Bernard Shaw has called him) has opportunely drawn general attention, but because of the potency of the theatre, both within and without, as an influence for good or for evil in art and taste, as well as in manners and morals.

F. J. R.

#### A New Departure.

THE Society of Architects is embarking on a new feature next Monday, when a concert of chamber music is to be given at the Society's premises at 28, Bedford Square, under the direction of Mr. Noel D. Sheffield. The programme is to include string quartettes (Schumann and Dvorak), a Sonata (Rubinstein), piano solos (Liszt), and gypsy songs (Dvorak). It is of course no new thing for architectural students to give a musical evening—if we remember aright, one of the societies of the Architectural Association has on several occasions done so; but it is certainly novel on the part of the Society of Architects. The idea, however, is an excellent one, and we wish the Society every success in its effort to promote harmony in its literal as well as in the metaphorical sense of the word.

#### A Town-planning Tangle.

THE district of Ruislip-Northwood has acquired some prominence as being the first in the kingdom to take action under the provisions of the Town Planning Act, and it is the irony of fate that at its very inception the amenities of its scheme should be seriously menaced at its heart. In the village street at Ruislip a row of shops is now in course of erection in defiance of the Council's authority, which threatens to so constrict the already narrow roadway at this point that widening will quickly become imperative. Litigation has dragged its desultory course for some months with results generally favourable to the Council, but disappointingly inconclusive in actual effect, for the shops remain and are being proceeded with. A considerable amount of local opposition has been manifested, rising even to the height of a meeting of ratepayers, at which a resolution was passed and a delegate appointed to represent to the Council the need for vigorous action. The situation is briefly this:—On the east side of the main road just southward of the old village is a strip of land which has every appearance of having been at one time a portion of the road-side. At the back of this lies the churchyard, and, while unbuilt upon, the road had that always pleasant effect imparted by a one-sided thoroughfare with a wide prospect over open country in one direction. The site is a very shallow one and difficult to utilise for building, even without restrictive frontage lines. That is a risk of which the present owner must have been

aware from the start. If the Council succeed in enforcing the building-line, which they claim the right to do, a great part of it becomes unusable—as properly it should be. As might be expected, the ratepayers' meeting, with true British materialism, dwelt on the traffic danger (which is undoubted) to the exclusion of other aspects of the case, but the Town Planning Act makes use of the blessed word "amenity," which is defined as "pleasantness of situation," and on this point a great deal could be said as to the futility of blocking out the fine open space afforded by the churchyard, with its extended views, by a thin slab of building. It is such mistakes that the Town Planning Act, liberally administered, should guard against.

#### To Protect the Building Owner.

A BUILDING Construction Indemnity Insurance Company is being formed, with the object, it appears, of protecting the building owner "against inferior labour, material, or other defects." This company "will undertake to fully guarantee that the proper class of work and material and a high standard of labour shall be maintained throughout; and this is effected not by the owner having additional expenses levied upon him, but by the contractor and architect having to conform to the rules of the company and receiving a certain percentage for their fee." The company, it is claimed, will relieve the owner of all risk; for, "in the event of the contractor not carrying out the work according to the specification, the company can justly claim and fully recover any sum which has to be paid to the policy-holder." But surely the building owner is already sufficiently safeguarded; and it is difficult to imagine architects and contractors embracing with enthusiasm any further opportunities of improving his present position. In the eternal triangular contest of building owner, architect, and contractor, the owner is always at the apex—that is to say, he nearly always comes out on top when he resorts to the litigation towards which his natural inclination needs no artificial impetus. To offer him fuller protection is absurd. Protection for the architect and the contractor against the whims and oddities and marked litigiousness of the building owner would be more to the purpose; but there are many cogent reasons why they should refrain from clamouring for it.

#### The Manchester Royal Exchange.

A SELECT COMMITTEE of the House of Commons having approved, last week, the scheme of the Manchester Royal Exchange Company for the enlargement of their premises at a cost of more than half a million, the long controversy over the proposal comes to an end; for by this decision the Corporation scheme is set aside, and the Exchange directors can do as they propose—that is, extend their building to a point midway between Bank Street and St. Ann Street, where a new thoroughfare 18 ft. wide is to cut through; whereas the Corporation were pressing for the extension to be carried to the full extent of the area, up to St. Ann Street. This decision recalls the fact that one of the proposals put forward was the erection of a new Royal Exchange on the Infirmary site, which, like the Strand island site in London, remains a wilderness. Now that the Exchange is to be kept to its own area, all question of waiting to know what the possibilities of dealing with the Infirmary site might be are set at rest, and it is to be hoped that some building worthy of this important position will be erected here. There has already been one competition in respect of an art gallery and library—never a happy association—and this proved futile enough. The next time, before architects are again invited to submit designs, it ought to be definitely settled what is going to be built on the site.



## WREN'S HOUSE IN BOTOLPH LANE.

**D**URING the past week the announcement has been made in the daily press that the last remnants of the house in Botolph Lane in which Sir Christopher Wren is reputed to have lived during the erection of St. Paul's Cathedral have been acquired through purchase by Alderman Sir Charles Wakefield, and will find a new home "on this side of the Atlantic." The information is somewhat ambiguous, but it seems to imply that the principal features of the house (now demolished) are to be preserved from the clutches of American curio enthusiasts. This house in Botolph Lane, of which we reproduce a view below, was not improbably built by Wren for himself. Its prevailing note was dignified simplicity, the proportions being excellent. Of three storeys, it was built of small bricks black-pointed, and crowned by a fairly bold cornice. There was little detail externally except for a small broken pediment over the central window, and plain stone dressings to all the others. The interior was fairly spacious, a wide entrance-hall, flagged in black-and-white marble, extending through the house, a depth of 32 ft. A grand staircase of oak, the wall of which was panelled to a height of 4 ft., gave access to the upper rooms.

The balusters were "Caroline," with blocked bases and caps. The date, 1670, appeared in plaster overhead.

To the left, immediately upon entering the house, was a small room, panelled throughout, with a fine chimneypiece and richly-wrought ceiling. The panels were high, moulded, and painted with a series of elaborate scenes, which, it has been suggested, are intended to represent the landing of Columbus in the New World or Sir Walter Raleigh's expedition to the Orinoco.

On the first floor there was evidence of considerable alteration. In one of the upstairs rooms was a small but very beautiful chimneypiece, having pilasters on either side, deeply and sharply fluted, and partly "cabled," with "acanthus" capitals. Above were two urns, in low relief, the only feeble part of the design. A series of marble rosettes ran right across in delicate carving, with outer bands of coloured marble; a moulded cornice surmounting the whole.

Exactly how much of the old work has been preserved we are unable to state, but from the circular letter in the newspapers it may be presumed that the chief features of the interior have been retained.



THE HOUSE IN BOTOLPH LANE REPUTED TO HAVE BEEN OCCUPIED BY SIR CHRISTOPHER WREN.



## HERE AND THERE.

THE house at Stafford, by Mr. Edgar Wood, which was illustrated in last week's issue of this Journal, leads me to think of roofs, and flat roofs in particular. For my own part, I should not go the whole length with Mr. Wood and make houses with perfectly flat roofs, of concrete perhaps, asphalted, because the top rooms must surely be easily affected by changes in temperature, so that the unfortunate persons who occupied them would lie restless on their beds in the oven-like atmosphere of a hot July and be shivering on a winter's night, when the room became a refrigerator. But I think there is much to be said in favour of flattening the slopes of roofs. Those high-pitched gables which someone, in an unhappy moment, discovered in the earlier half of the nineteenth century have been the bane of house-building ever since. The garden city enthusiasts have seized them wholeheartedly, and, as a consequence, we must needs have dormers poking their silly little faces through the expanse of slate or tile, and, within, rooms with the corners sliced off, and passages with only one side high enough to allow us to walk upright. In these matters no quarter must be given; we must not admit that the other man has a ghost of reason on his side: so down with all these pretty tricks of the pseudo-cottager and the mock village builder, and let us go solidly for rooms which are right square, so giving us the chance of setting our furniture in them in a satisfactory way. This has especial relation to top rooms, for who does not know those garrets where the bed-post touches the sloping ceiling, where the dormer gives a space that is almost uncomfortably filled by a common chair, and where we experience the greatest discomfort from being so close under the roof. The flattened roof of the 1810 period appeals to me far more, for it gives square-ceiled rooms on the upper floor and puts a sufficient cushion of air between them and the roof surface to keep the rooms reasonably warm in winter and cool in summer. But we need not take it for granted that the whole problem was solved in this way a hundred years ago. Concrete roofs, roofs of tiles and slates, and roofs of patented materials and compositions give the opportunity for some of that adventure in architecture which Professor Lethaby tells us is the golden way to all new developments. Walking over the roof of Westminster Cathedral, one notices the covers, built up of concrete slabs, which Bentley set above his mighty saucer domes, with an air-space between to minimise the effects of changes in temperature. Might we not take a hint from this for the roofs of our houses? Concrete thus used, as a double skin, might well make our top rooms all that could be desired.

Travelling of a morning into town and city, and travelling out again after the business of the day is done, we have always before us, in train or bus or tram, the sight of newspaper readers; and though we may go away in summer time, and for a few short weeks care not a rap for home and foreign politics, civic tragedies and triumphs, our accustomed habits soon settle down on us once again, and we devour the columns which the journalist has provided as our daily portion. The fact is, we cannot get away from the world of news. To the newspaper, indeed, we are indebted for the bulk of our information and the majority of our opinions on men and matters. And if we include the technical press in our survey, we shall see that here the professions and trades are largely dependent upon the journalist. Architects and builders, for instance, would be hard put if all the journals devoted to their interests were to cease forthwith. No longer would the building contractor find ready to hand the particulars of new contracts to keep his staff going; no longer would the architect be cog-

nisant of a tithe of what his contemporaries were doing; the views of those who had something to add to the stock of knowledge, either in the survey of the past or the present, would be restricted to the hearing of a mere handful of men at a meeting; and thus very little would be known of what events were taking place in the realm of architecture and building, of what new developments were in progress, of what architectural and building work was being done. I have no doubt there are architects who but rarely turn the pages of their journals, and who perhaps in this respect regard themselves as superior beings who have little concern with vulgar professional matters and the hum-drum of everyday practice; but, after all, these are not the men who count for anything in either architecture or building. The truth is, none of us—whether lay or professional members of the public—can escape from the lure of the printed sheet, any more than we can set ourselves against the rush and roar which is making modern life an ever-increasing burden. So a word for the journalist may here be given in season; and to it I would add a gentle hint to those young men who are always ready to criticise both the work of architects and the architectural journalist, but who, when it comes to the test, cannot themselves produce a passable design nor write a line of decent English.

\* \* \* \*

So far as the daily press is concerned, while observing that the poor architect rarely gets his name mentioned at the foundation-stone laying or the formal opening, I feel myself under a debt of gratitude for material which has come to hand very opportunely many times, thus giving me occasion to turn a few phrases in filling these columns. It is only quite recently that a North Country reporter enabled me to introduce the Ellington Style to the notice of architects, a style, it will be remembered, which was distinguished not by any of the familiar features of shaft and cap and entablature, but by enabling a school for 100 children to be erected in twenty-four hours. And now another journalist, this time on one of the great London dailies, gives me the opportunity of gaining one further glimpse into the building methods of the future.

In the case of the Ellington Style we had set before us a brilliant example of architecture on the hook-and-eye principle, which was astonishing enough. But this is surpassed by the porcelain house of Mr. W. Hales Turner, as described in the "Daily Express." The building work is simplicity itself, for the house, sent down in parts to its future owner in some country village, "can be put together in one day with only a screwdriver and a spanner." Here, then, we have the ideal of building, or architecture on the nut-and-screw principle; leaving the way clear for the apotheosis of construction, or architecture on the hair-pin system. No more mess and bother with such dirty things as bricks and mortar; no lime-slaking traps, and puddles of clay and cinders; no wallpapers, no fireplaces; but all the delights which steam-proof walls and ceilings, and water-proof doors, can give us. And what is going to work this magic? Simply Mr. Hales Turner's method of building, which comprises a steel framework filled with large porcelain tiles an inch thick. The inventor, so we are told, has spent forty years in obtaining the right sort of tiles, and now, having found them, nearly a column of a leading London daily is devoted to a description of their application, in what may be called the Free Journalistic Style. And if I am not stunned by the glorious possibilities of the porcelain house, my eyes are at least opened to a vision which has no concern with the Georgian, the Neo-Greek, or the Louis Quinze. Henceforth I shall be ever on the look out for the New, the Unprofessional. UBIQUE.



## THE CONSTRUCTION AND STONE-CUTTING OF A PENDENTIVE DOME.

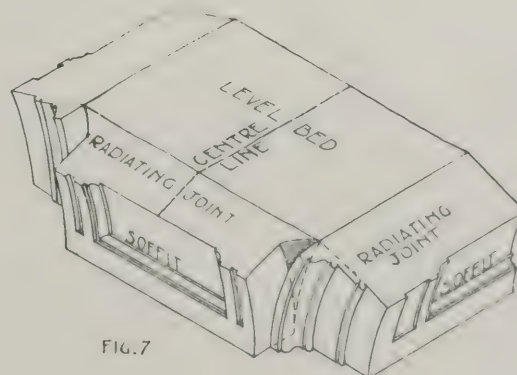
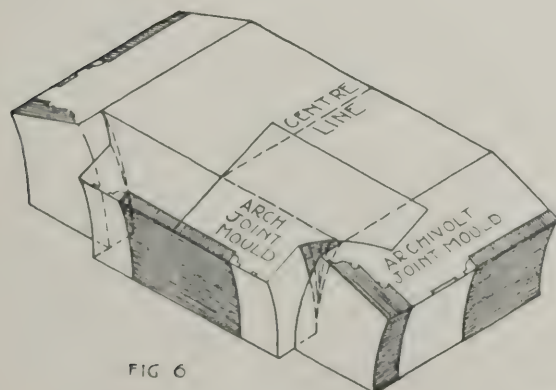
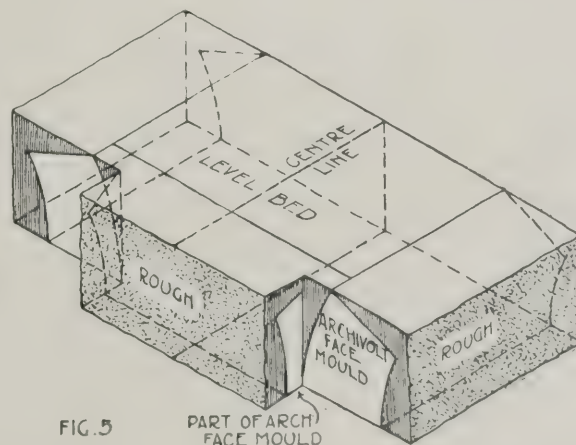
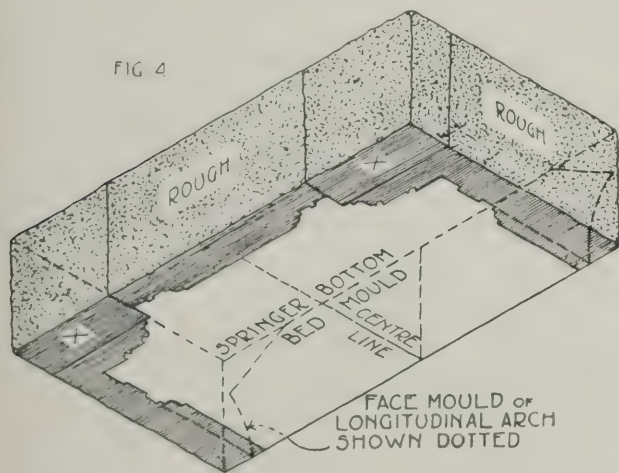
BY JAMES S. BOYD.

[SPECIALLY CONTRIBUTED.] (Concluded from page 399, No. 953.)

**Stone No. 1.**—The dimensions of the block required for the pendentive springer can be ascertained from the plan (length 5 ft., width 2 ft. 7½ in.), and from the elevation (height 1 ft. 3½ in.) of the stone, as seen in the section. Begin by working the bottom bed, and on it accurately scribe the bottom bed-mould (Fig. 4). At right angles to this bed, and working to the long straight edge of the mould, cut the vertical joint, on which scribe the face-mould (shown dotted) of the longitudinal arch. Now gauge the stone to the extreme height of this face-mould, and work the top bed, on which the lines required would be scribed. Next remove the portions marked X in Fig. 4, cleaning the faces of the arches, and scribing on them as much of their respective face-moulds as may be required (see Fig. 5). The radiating joints may now be cut to the lines of those face-moulds, and the archivolt and arch joint moulds scribed (Fig. 6). The small part of the pendentive and its intersection with the two arches is then worked, applying a spherical templet to the pendentive surface in the direction of the converging lines shown. This templet should be of wood curved on one edge to the same curvature as the section of the inner spherical surface. After this the soffits may be worked through, guided by a straightedge applied parallel to the long arrises. Finally, sink the panel with its small moulding, and work the members of the archivolt (see Fig. 7, which is a view of the finished stone). If it is intended that the guilloche ornament shown in Fig. 1 should be worked on the soffits, the portion belonging to this stone would be cut after the panel had been sunk.

**Stone No. 2.**—Begin with the top bed, which is worked to a plane surface, but observe that the greater part of this bed will be cut away later; therefore

unnecessary labour should not be expended upon it. Scribe the bed-mould, and at right angles to the bed cut the two vertical joints, on which inscribe their respective face-moulds, as shown by dotted lines in Fig. 8. The bottom bed should now be worked similarly to the top bed, gauging the stone to the exact height of the highest of the two face-moulds, i.e. the longitudinal arch face-mould. On the bottom bed, using the bed-mould, scribe the lines necessary to enable the vertical faces of the arches to be cut. To apply and scribe the archivolt face-mould on its vertical surface (see Fig. 9), square over a line—shown dotted—on the bottom bed, and square down two lines *zz* from the top bed to determine the two uppermost corners of the face-mould. The face-mould of the margin of the transverse arch will be applied similarly, except that a level draft is worked through from the vertical joint of this arch, and on the draft a line is squared over to determine the lower corner of the face-mould. Next proceed to work the upper conical bed. Accurately square down from the top bed the cylindrical portion of the stone containing the inner arris of this conical bed, and on this surface gauge the arris from the top bed to the depth *x* obtained from the face-mould of the transverse arch in Fig. 2. Between the arris line just drawn and the curved arris line on the top bed radial drafts are cut, guided by a short straightedge, applied in such a way as to stand in a vertical plane passing through the vertical axis of the sphere. The upper and lower radiating joints of the two arches can now be worked (Fig. 10), taking particular care that the very small lower conical bed is not cut into. On the joints just cut scribe the respective joint moulds of the longitudinal and transverse arches. Notice that the joint moulds may be



Stone No. 1.



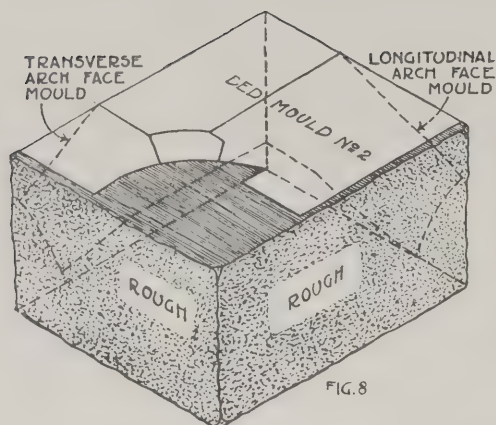


FIG. 8

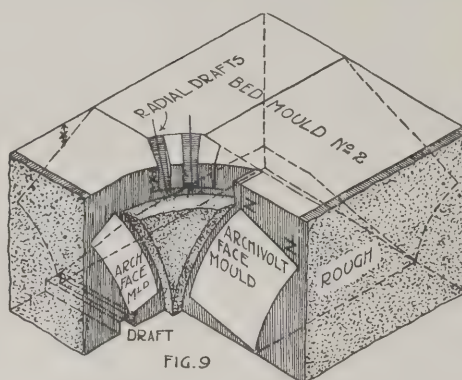


FIG. 9

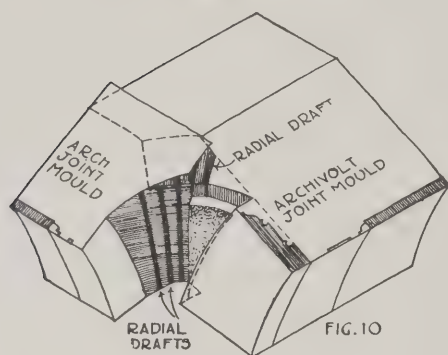


FIG. 10

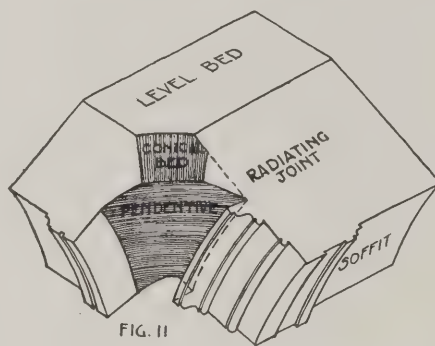


FIG. 11

Stone No. 2.

made larger than is necessary for this stone in order that the curved edge will be available when scribing in this curve on the larger joint surfaces of the arch stones above stone No. 2. The radiating joint surfaces lying in planes which are normal to the spherical surface, this curved edge of the mould will be part of a circle of the same radius as the spherical templet and as the dome. The pendentive portion of the stone, being now circumscribed, may be cleaned out by working radial drafts sunk to the spherical templet already described. The intersection of this spherical part with the back of the archivolt and with the margin of the other arch must be very neatly cut. To the lines of the face-moulds, and guided by a straightedge, work through the soffits of the two arches; then sink the panels and work the panel moulding together with the guilloche ornament if the latter is required. Complete the work on this stone, as shown in Fig. 11, by cutting the mouldings of the archivolt.

*Stone No. 3.*—The largest plane surface of this stone is the upper radiating joint of the arch; therefore, begin by working this surface (Fig. 12). At right angles to this plane work the vertical joint of the arch, and on it inscribe the face-mould taken from the elevation of the stone, Fig. 2. Now bring the stone approximately to the width shown on plan by forming an operation plane at right angles to the plane first formed. On this operation plane inscribe the face-

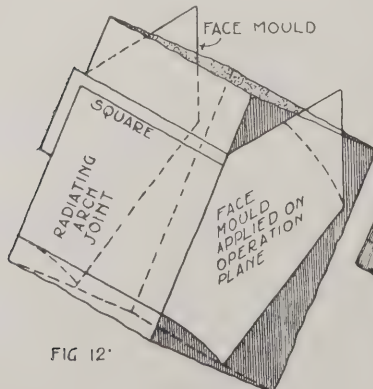


FIG. 12

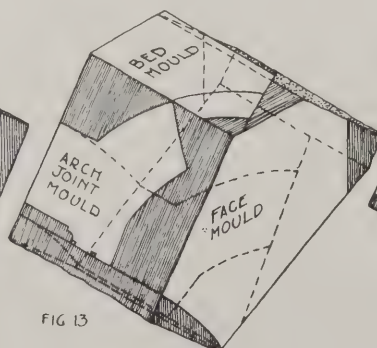


FIG. 13

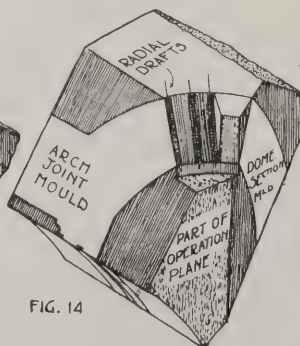


FIG. 14

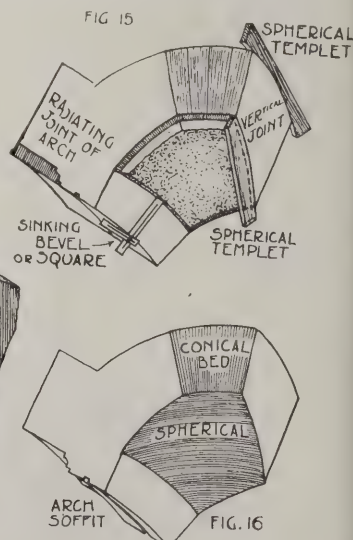


FIG. 15

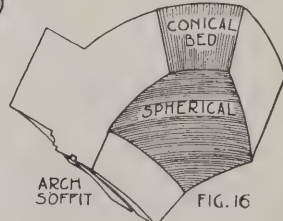


FIG. 16

mould, guided in its application by squaring over from a corner of the mould formerly scribed on the vertical joint. A level operation bed is now taken off to the top edge of the face-mould, and on this level bed inscribe as much of the bed-mould as will be required (see Fig. 13). Unnecessary labour should not be thrown away on this bed, as only an arris will remain when the stone is finished. Next cut through the lower radiating joint and inscribe the joint mould on both joints (see Fig. 13).

As already mentioned, one joint mould will serve for all such joints, provided the circular edge of the mould is made long enough for the largest stone, a normal to the soffit curve being scribed on the mould (see mould in Fig. 2) where required for each joint.

To the lines drawn on the lower radiating joint and on the level bed cut the vertical joint in the domical part of

the stone (Fig. 14) and inscribe the section mould indicated on the section of the dome in Fig. 2.

Sink a draft (with templet taken from bed-mould) to contain the lower arris of the conical bed, and from the operation bed trammel in the arris line on the cylindrical surface formed as already described for stone No. 2 (see Fig. 14). The conical bed can now be cleaned out by running radial drafts between the upper and lower arrises. The cylindrical soffit of the arch can next be worked to the lines drawn on the vertical joint and vertical operation plane, after which work the extrados of arch and the external spherical surface, using for the latter a concave templet taken from the extrados of the dome in section (see Fig. 15). To work the inner spherical surface of this stone first remove the surplus material, and then work the flat face margin of the arch by the aid of a sinking square or bevel applied from the soffit. This square should be set to the exact width of the flat margin (6 in. in this case), and the entire margin cleaned to a finish. Now run a neat chisel draft round the other four edges as shown, and applying the spherical templet from draft to draft across the intervening space, complete the inner

Stone No. 3.







THE GARE DU NORD, PARIS: DETAIL





FAÇADE. HITTORFF, ARCHITECT.





spherical surface. Lastly, the stone is completed, as shown in Fig. 16, by sinking the soffit panel and working the moulding

*Stone No. 4.*—The shape of the rough block required for the working of this stone is a rectangular prism; length equal to that of its bed-mould shown in plan, and height equal to that of the section mould for this particular course. As there are twelve stones in this course, it would be economical to gauge all the stones to the course to the exact height by working a top-and-bottom bed with a planing machine. If a machine be not used, begin by working the top operation bed, and then inscribe as much of the bed-mould as is required (Fig. 17). All that is left of this bed when the stone is finished is the upper arris of the conical bed; therefore, avoid needless labour. Now cut the vertical points at right angles to the bed (Fig. 18), and apply the section mould accurately by making a vertical line—previously scribed on the mould—to stand directly over a similar line scribed on the stone square from the top bed. If not already done, bring the stone to a parallel thickness by working the bottom operation bed to the exact height. On this bed apply the bed-mould and scribe the lines required. A draft is now sunk to contain the inner arris of the upper conical bed by applying a templet taken from the corresponding curve on the bed-mould or from the plan (see Fig. 19). The small part of the stone directly above this draft should be squared down from the inner arris line as drawn on the top bed; then gauge the arris line parallel with the top bed. The splayed conical bed can now be worked by running radial drafts between the interior and exterior arrises guided by a short straightedge applied as shown in the figure.

To work the lower conical bed take a concave templet made to the outer or convex edge of the bed-mould or from the plan and sink a draft to contain the arris. Next work the small vertical cylindrical surface below this draft, and gauge in the arris line parallel with the top bed. The lower bed can now be cut by running radial drafts as for the upper bed (see Fig. 20). Now remove the surplus material on the extrados, and square off the outer spherical surface by cutting radial drafts to the concave templet taken from the convex edge of the section mould. In a similar manner remove the surplus stone on the intrados (Fig. 20), and square out the inner spherical surface to the convex templet already used on stones 1, 2, and 3. Fig. 21 is a view of the finished stone.

## OUR PLATES.

*The Gare du Nord, Paris.*

THE Gare du Nord, Paris, illustrated on our Centre Plate this week, is Hittorff's best-known building, and as an example of railway station architecture is worthy of very careful study. The photograph which we reproduce shows the centre portion of the façade. This, it will be noticed, is treated as a pedimented feature following the lines of the station roof behind, with bold pilasters on either side holding in the great arched window. The only defect is the glass awning that extends over the footway. This cuts the line of small columns in a very unhappy manner, and has the appearance of being either forgotten in the architect's original scheme or a later addition by someone who did not see what an unfortunate effect its erection would have. But, despite this, there can be no doubt that the façade is very dignified, and it is one which might well be taken as a model by station designers in this country. It is entirely of stone and was carried out in 1863.

*" Moorings," Cooden Beach.*

This house, illustrated on page 438 as the sixth in our new series, is built on Lord De La Warr's Cooden Beach estate, Bexhill-on-Sea. It is erected on the edge of the cliffs, and has a fine open view of the Channel. The situation is exposed, and the roof was brought down over the ground floor windows as a protection. The elevations are faced with local purple stocks, the roof is covered with old tiles, and the tile hanging is of thick red sand-faced tiles. The opening lights have iron casements, and each room has top-hung ventilating lights. The windows have lead lights in  $\frac{1}{2}$ -in. cames. The internal walls are finished with sand-faced plaster. The woodwork is stained with "Jodelite." The fireplaces are formed with 2-in. bricks and roofing tiles. The living-room has old oak beams obtained from a neighbouring barn. The external walls are 11 in. hollow, the cavity running out against the frames and "Ruberoid" strips provided to keep out the driving rains. All floors are solid; the wood flooring is nailed to the concrete. The house was built by Messrs. Crosby and Co., of Farnham, from designs and under the superintendence of Messrs. Cyril B. Tubbs and A. A. Messer, of Bexhill-on-Sea and Woking.

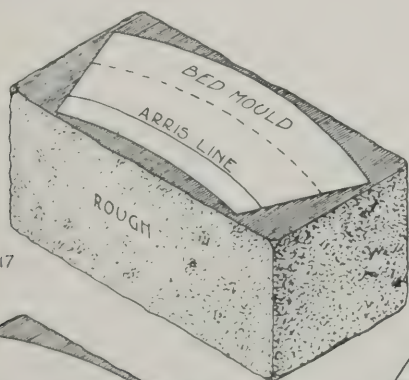


FIG. 17

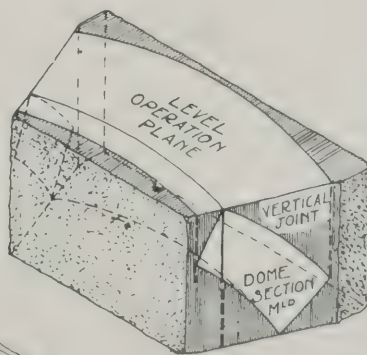


FIG. 18

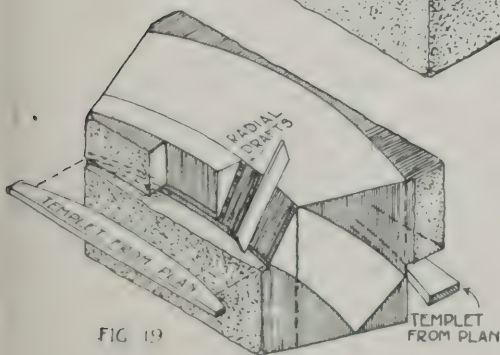


FIG. 19

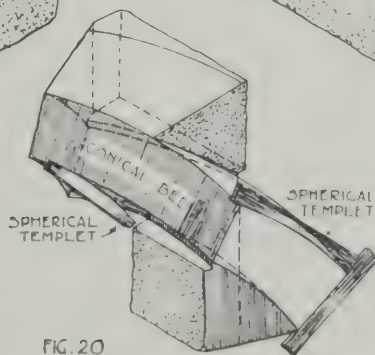


FIG. 20

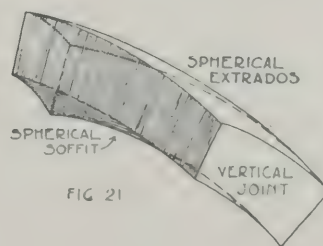


FIG. 21



## CORRESPONDENCE.

*The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents.*

*Correspondents are asked to be brief and to write on one side only of the paper.*

*Official Architecture.*

*To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.*

SIRS,—With reference to the article on the above subject in your issue for April 9th, I should like to call your attention to two facts: (1) A Departmental Committee was appointed in connection with the Board of Education, and their Report was published in 1911. Many meetings were held and witnesses examined. The following are extracts: "The evidence laid before us indicates that the most economical buildings, considered in relation to their efficiency for educational purposes, have been provided by architects who have made a special study of school planning, either as official architects of local education authorities or in the course of private practice." In other words, the official works as economically as the private architect.

The second extract is with regard to competitions, and the opinion expressed is a very strong one: "So far as ordinary elementary school buildings are concerned, the evidence which we have received leaves on us the impression that competitions are, as a rule, a waste of time and money. It is claimed by their supporters that they not only give new men a chance, but promote progress and the introduction of new ideas. Unfortunately, experience in this respect is paradoxical," etc. Again: "The employment of a local architectural staff, or, at any rate, of an architect, with local knowledge, may effect substantial economy."

(2) On February 18th it was officially stated, at a meeting of the London County Council, that the cost of the Council's school architecture, in ordinary circumstances, was less than half the scale laid down in the R.I.B.A. Schedule (see R.I.B.A. "Journal," March 8th, 1913, page 315).

Again, might I refer your readers to the Report of a Committee appointed in 1904 by the R.I.B.A. to inquire into the question of official architecture. The Report is printed in the R.I.B.A. "Journal" of December 10th, 1904, page 104. Apparently that Committee adopted the remarkable system of making inquiries of any one except an official or the authority employing him, but, in spite of that, the private architects who were consulted were generally of opinion that, for financial reasons, "much may be said in favour of" an official architect's department.

In conclusion, may I point to an incorrect statement in the second paragraph of your article:—"But, in point of fact, though the salary of the chief remains the same, the size of the official staff increases," etc. It is usual to increase the salary of an official according to the work done, and also to make grants and recognise his labours.

SUBSCRIBER.

*To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.*

SIRS,—In order not to trespass on your space too much, will you allow me to call your attention to a letter on the grievances of architects in the R.I.B.A. Journal for March 9th laying stress on some economic difficulties in the way of reducing the amount of official architecture. Point is added to this letter by a paragraph in the same issue stating that the percentage of cost of the L.C.C. staff engaged on new school buildings, including establishment charges, is less than half the scale laid down in the R.I.B.A. schedule.

When complaint is made against official architecture in the technical journals or by architects in private practice it always seems necessary to speak of architectural assistants engaged in public offices in opprobrious terms. "Understrappers" was the epithet used

by Mr. Leonard Stokes from the presidential chair of the Royal Institute. In the editorial in your issue for April 9th the writer speaks of draughtsmen being provided with soft jobs. Why "draughtsmen"?—"mere common draughtsmen," I have heard them called. Surely if the Institute examinations mean anything they are something more than draughtsmen. These men are exactly the same in class, training, and experience as every architect when he first starts to practise, and in numerous cases they have had more experience than many already established in practice.

One point further: Are open competitions a panacea for the alleged evils of official architecture? The new Admiralty buildings is one result, and the official mind proved too strong for even such a master of architecture as Street when planning the Royal Courts of Justice.

Protests against official architecture will not succeed when based on false comparisons of cost or on abuse of those who do the work. If the desire is really for better work, the remedy is to improve the status of those engaged in the work in order that they may have greater freedom from official thralldom.

A.R.I.B.A.

*The Cheap Cottage.*

*To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.*

SIRS,—In the course of a recent speech in the House of Commons on the rural housing question Mr. Runciman said that he had visited a five-room detached cottage suitable for labourers which had been built for less than £90. The cottage in question is a bungalow, which was built near York for Messrs. Rowntree under the supervision of Mr. W. J. Swain, and a plan and particulars of it were given in your issue for March 5th.

Mr. Swain states that the walls are of concrete blocks 9 in. thick, the inside partitions being of concrete slabs 2½ in. thick, and the flat roof of concrete 4 in. thick.

The concrete was composed of boiler ashes. The roof was laid to fall, and the concrete was skimmed over with a steel trowel as the work proceeded, and not asphalted. The ashes for the concrete were supplied free of cost; this was the only material not paid for, but the cartage of the same was a charge.

The ashes, if near a railway station, would cost about £2. It is very apparent, therefore, that either materials and labour must be unusually cheap in that district or the book-keeping was at fault. I have taken out the quantities from the plan and particulars published, and pricing them at the very lowest rates that any town or village builder could erect such a cottage in a similar way, I find that the prime cost amounts to about £120 with supervision and, if a builder is employed, his profit to add. This applies to walls, whether built of stone brick, or concrete. Nothing is said in Mr. Swain's report as to the cost of water supply.

I would willingly submit these quantities for publication, but I fear they would take up more space than could be allowed in a professional journal.

The plan does not make for cheapness in some directions. A passage 18 ft. by 3 ft. 6 in. is far too large for a labourer's cottage, and a narrow passage is not a convenient place for perambulators, as suggested—one-half or one-third the size should be sufficient—nor do three separate chimneys tend to economy when it is practicable to make one sufficient—if two bedrooms only had fireplaces, which is ample, for they are scarcely ever used, except in cases of sickness, and their value in assisting ventilation is, as a rule, negated by the common practice of stuffing bags of straw up the flues to prevent down-draught.

Owing to the almost entire disuse of fires in cottage bedrooms, it is common knowledge that the flues or chimneys built in outside walls, being cold and damp are apt to smoke. On the contrary, where built inside



and several flues are brought together to form one stack, the air in them is more rarefied, and a draught is avoided.

The fuel place, of 3 yds. super. area, may do very well where coals can be bought by the cwt., but this is not often the case in rural districts.

The absence of an outbuilding would result in the bathroom, and the bath itself, being used as receptacles for paraffin cans, garden tools, washing tubs, perambulator, winter potatoes, and many other things which the rural labourer wants room for, or thinks he does. They must be put somewhere, and there is obviously no room in the scullery, which is also the washhouse, as four doors leading therefrom, a boiler in one corner and a sink in another, and measures 9 ft. 3 in. by 6 ft. 6 in.—less than 7 yds. super.

The flat concrete roof, measuring 28 ft. 6 in. by 15 ft. in the clear of the external walls, has to be entirely supported otherwise than by the 2½ in. inside partitions, each with a doorway therein, and as the dead load of the concrete is not less than 12 tons, and now has to be provided for, there is not much margin for contingencies. The partitions would not crush, but buckling or bending might occur. It would be interesting to know what the factor of safety is, bearing in mind that concrete expands and contracts with variations in temperature, often resulting in cracks, which are weak places in a roof of this kind. These cracks often do not appear for a year or two (sometimes longer) after the work has been finished, and are a puzzle to many. So far as I am aware, no cutting out of the cracks and stopping with cement is of any use, and in the end the roof has to be asphalted. I have asked a firm of asphalters if they had many old concrete roofs to asphalt, and the reply was—"any number."

Reinforcing the concrete helps to prevent contraction and expansion to some extent, but is not always successful. The failures of concrete hitherto have been mostly the collapse of flat roofs and floors, many of which we hear nothing about, and for this reason cheapness should not take the place of proper safeguards to ensure absolute safety to the inmates.

Mr. Swain has furnished particulars of the cottage

in question with the best intentions no doubt, but there is something wrong in the cost somewhere.

The problem of building a substantial labourer's cottage which provides suitable accommodation in a rural district for a man and his family, and includes an outhouse, at a total cost not exceeding £150, has not yet been solved, nor, apparently, is it likely to be. Public statements of unusually cheap cottages (which are not infrequent, but which will not stand analysis) lead owners of land who are willing to erect cottages on economical lines to ask why their architect or clerk of works or builder is unable to do the same and as cheaply as others have done or are doing, and they come to the conclusion that there are some who evidently understand the matter better than the majority of other people; and Mr. Runciman's statement only serves to confirm their views in this respect.

THOMAS POTTER.

#### *The Strength of Camber Arches.*

*To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.*

SIRS,—The angle of the skewback of the camber arch is quite immaterial, as pointed out by Professor Adams. What Mr. Walker appears not to apprehend is that the voussoirs composing a lintel built as a camber arch do not discharge the function of arch-stones until the load is sufficient to make it fail as a lintel; after that the load is sustained solely by virtue of the invisible arch contained within the limits of the camber arch. It is an instance of natural mechanical selection, aptly expressed in Professor Adams's words:—"Nature chooses the outline that gives the maximum resistance." The case is precisely the same as regards the remnant of Mr. Walker's camber arch which had been extraneous until he removed the central upper portion of the arch.

London.

R. W. C.

ERRATA: In Mr. Waldram's letter on "Test Deflections in Reinforced Concrete" on page 373 of our issue for April 9th the symbols for section modulus should read: S<sub>Mc</sub> and S<sub>Mt</sub> instead of 5<sub>Mc</sub> and 5<sub>Mt</sub> as printed.

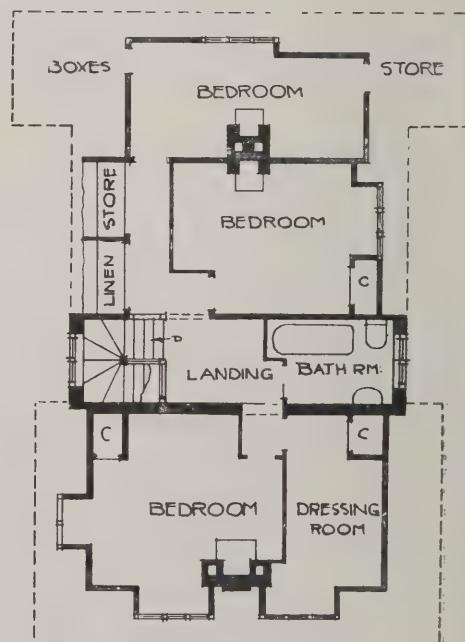
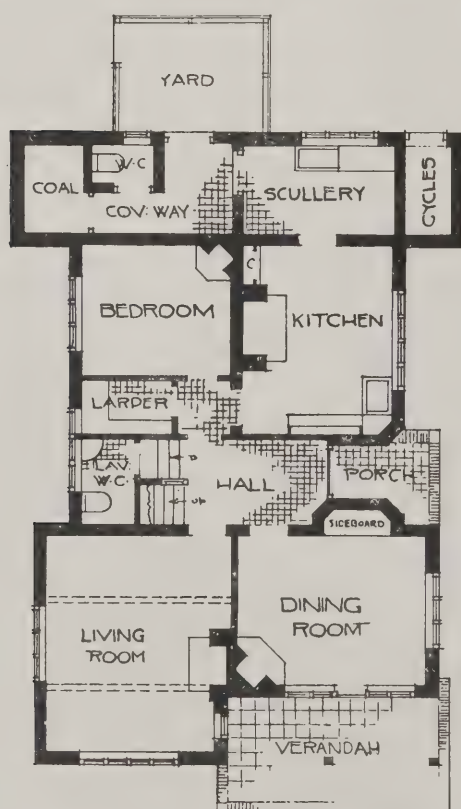


Mausoleum, Home of Peace Cemetery, San Mateo County, California.  
Willis Polk and Co., Architects.



Mausoleum, Newark, New Jersey. Cass Gilbert, Architect.

#### TWO INTERESTING MODERN MAUSOLEUMS



SCALE 10 5 0 10 20 30 40 50 OF FEET

Ground- and First- floor Plans.

MODERN DOMESTIC ARCHITECTURE. HOUSES OF INTERMEDIATE SIZE. VI.—“MOORINGS,” COODEN BEACH, BEXHILL-ON-SEA. CYRIL B. TUBBS AND A. A. MESSER, ARCHITECTS.

(See page 435.)



## MODEL ANSWERS TO R.I.B.A. EXAMINATION QUESTIONS.

## INTERMEDIATE EXAMINATION.

BY G. E. FRANCIS.

## HISTORICAL ARCHITECTURE—(a) GREEK AND ROMAN.

(Concluded from p. 408, No. 953.)

## Question 5.

Give sketches, showing the general arrangement of a Roman triumphal arch; write against each portion of the structure its name, and criticise any features which strike you as being incongruous.

*Answer.*—The arch illustrated is that of Titus at Rome (A.D. 81), commemorating the capture of Jerusalem in A.D. 71. The outstanding incongruity in the design is the finish of the pilaster cap mouldings against the circular face of the columns (see "A" in sketch).

## Question 6.

Describe travertine, peperino, tufa, and pozzolana. How were they used by the Romans? Given some typical examples of their use, and explain and illustrate the various methods adopted by the Romans of facing concrete walls with brick and stone.

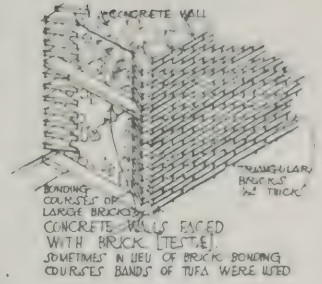
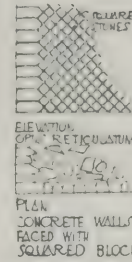
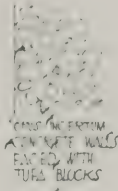
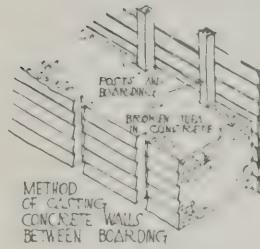
*Answer.*—Travertine, tufa, peperino, and pozzolana were the most important materials used for general constructional purposes by the Romans.

Travertine, a hard limestone, is nearly pure carbonate of lime, quarried near Tivoli, and is employed as a facing to the concrete walls of the Colosseum.

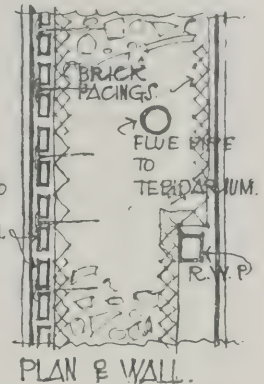
Tufa, a stone of volcanic origin, of which the hills of Rome are mainly composed, was employed in early Roman buildings to a great extent, but its bad weathering qualities were a defect, and for this reason it was usually faced with stucco.

Peperino is a stone of volcanic origin from Mount Albano. It is harder than the hardest variety of tufa, is a fairly good weathering stone, and is fireproof.

Pozzolana is a volcanic deposit existing in large quantities under and all round Rome in thick strata, just as it was shown out of the neighbouring volcanoes. It resembles a sandy earth mixed with larger lumps about the size of coarse gravel. When mixed with lime, it forms a strong hydraulic cement. This material



Question 6.

SECTION THROUGH WALL & FLOOR Etc.  
BATHS OF CARACALLA.  
METHODS OF HEATING.

Question 9.

contributed largely to the durability of Roman architecture.

The faced concrete walls were of four varieties:—

(a) Concrete faced with "opus incertum," the concrete backing being studded with irregular-shaped pieces of stone. This was used in the first and second centuries B.C.

(b) Concrete faced with "opus reticulatum," resembling the meshes of a net, the joints being laid in diagonal lines.

(c) Concrete faced with brick (testæ), used from the first century B.C. to the end of the Western Empire. Walls were faced with bricks triangular on plan, and  $1\frac{1}{2}$  in. thick.

(d) Concrete with "opus mixtum," being a wall of concrete faced with brick and having stone bands at intervals. (See sketches.)

## Question 7.

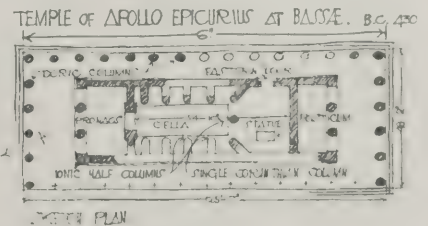
Draw a plan of the Temple of Apollo, Phigoleia (Bassæ), not less than 6 in. long and describe the points of interest in the building.

*Answer.*—The Temple of Apollo, Epicturius, Bassæ, B.C. 430. Ictinus architect. The plan is peripteral hexastyle, with fifteen columns on each flank; the building is constructed generally of a hard, grey limestone. All three Orders are found here, the Corinthian being generally considered the earliest known. The principal façade faces north, an unusual arrangement. Light was admitted to the statue of Apollo through a door in the eastern wall. The Ionic half-columns in the cella terminate short cross-walls, and have an original treatment in the capitals with angle volutes and the boldly moulded bases. Great care was expended on the Parian marble roof slabs, some of which were pierced with holes and appear to have afforded a means of lighting the interior of the Temple.

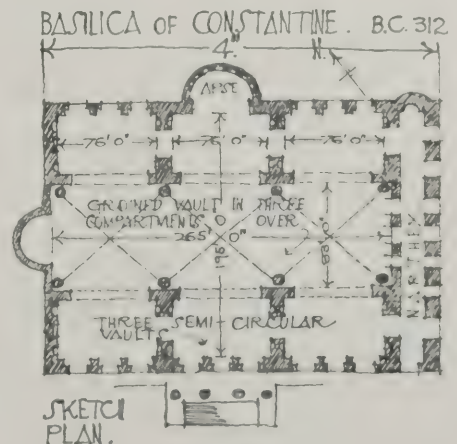
## Question 8.

State what you know about the Basilica Julia, the Basilica Ulpia, and the Basilica Constantiniana and draw sketch plan 4 in. long of one of them.

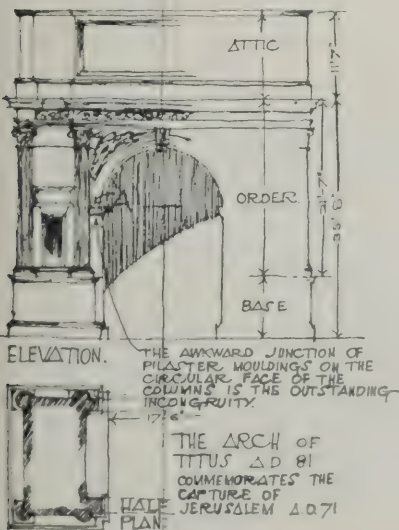
*Answer.*—The Basilica Julia was begun by Julius Cæsar and finished by Augustus. After being destroyed several times it was finally rebuilt in A.D. 377. In plan it had a large double colonnade, open on three sides, with two tiers of columns, one over the other, thus forming an upper floor. The other side was occupied by a range of rooms, two or three stories high. The



Question 7.



Question 8.



Question 5.





Fig. 2.

## REINFORCED CONCRETE BEAMS UNDER TEST.

walls were of tufa, with bands of travertine at intervals. Some very interesting remains of these rooms exist, including stairs. The large central space appears to have been without a roof, the span being too great to admit of one. The space under the aisles was paved with massive slabs of white marble.

The Basilica Ulpia, A.D. 98.—Apollodorus of Damascus architect—was a fine example of the wooden-roofed type and formed a part of Trajan's great scheme. Entered from Trajan's Forum, it had a central nave 87 ft. wide with double aisles each 23 ft. 9 in. wide, and an internal length, excluding the apses, of 385 ft. The internal height was about 120 ft. At each end were semi-circular apses reached by flights of steps, as were the galleries over the side aisles.

The Basilica of Constantine (A.D. 312) consisted of a central nave 265 ft. by 83 ft. wide, covered by an immense groined vault in three compartments 120 ft. in height. The vaults sprang from the entablature on monolithic columns attached to the pier faces, and although in one case the column has disappeared, a portion of the vault over remains, thus illustrating the extraordinary tenacity of Roman concrete. The aisles were both roofed with three great semicircular vaults each 76 ft. span. Light was introduced in the upper part of the nave by means of lunettes resembling clerestory windows.

## Question 9.

State what you know about the systems of heating adopted by the Romans for houses and baths. Give diagrams.

*Answer.*—The Romans resorted to several methods for warming their houses during winter. In the first place the rooms in which they lived chiefly were so arranged as to have plenty of sun, and this, with the mildness of their climate, partially served their purpose. The rooms were also warmed by means of pipes connected to them from the hypocaustum, or there were near the rooms in occupation small rooms, heated by a hypocaustum; by means of an opening, which could be regulated at pleasure, warm air was admitted to the room. They also used coal tubs and portable stoves, specimens of which have been found

in Pompeii, the fuel being charcoal or dry wood. The vaulted chamber under the platforms, on which the Roman baths were constructed (mentioned in Answer 2) were utilised as store-rooms, the hypocaust, and furnaces for heating the water and the hot air ducts. For the wall construction and methods of heating see the sketch sections.

## TESTING APPARATUS FOR REINFORCED CONCRETE.

As an instance of what can be accomplished with inexpensive appliances, the testing apparatus at the Westminster Technical Institute is worthy of notice. A comprehensive course of lectures is given on the principles of design in reinforced concrete, and as each branch of the subject is dealt with, experimental members rectangular and T beams, columns, etc., are cast by the students, with varying types and proportions of single and double reinforcements, shear members, and hoop ing. After the cement and aggregate have been tested, the strengths and theoretical deflections of the experimental members are calculated, and they are tested to destruction at a uniform age of twenty-eight days. The institute not being equipped with any testing machines it became necessary, in order to make practical tests on large-size beams, to construct a testing apparatus recording large loads and very minute deflections.

An apparatus which has been devised by the Principal, Mr. Ker, and his assistant, Mr. Whybrow, and constructed entirely by the school staff, is shown in Fig. 1. This not only breaks beams requiring as much as  $2\frac{1}{2}$  tons central load by increments of 70 lb., but enables the deflections to be read accurately to  $\frac{1}{20}$  of a millimetre—viz., about  $\frac{1}{500}$  of an inch or say  $\frac{1}{8}$  of an inch in an  $\frac{1}{8}$  scale.

Diagrams showing a complete range of deflections can thus be plotted for every beam tested for comparison with the calculated deflection, and its behaviour at different stresses are reached can be noted. Fig. 2 shows the testing of small rectangular beams reinforced with wire.

The last word has not been said on the theory of the subject, and the paucity of available experimental data with regard to deflection, double reinforced beams, shear members, etc., is shown in the eloquent silence of the proposed L.C.C. regulations and the R.I.B.A. reports with regard to these important matters.

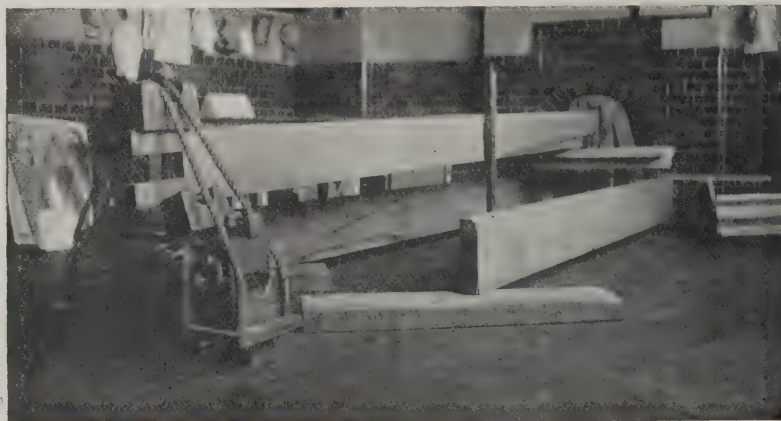


Fig. 1.

## TESTING APPARATUS, WESTMINSTER TECHNICAL INSTITUTE.



## THE CAUSES OF CRACKS IN CONCRETE.

THE Reinforced Concrete Practice Standing Committee of the Concrete Institute, having investigated the causes of cracks in concrete, have now issued a general report, from which the following extracts are taken.

The cracking of concrete is unsightly, but not necessarily dangerous. Cracks in concrete may be divided into two classes: (1) Surface cracking. (2) Body cracking. The first category the cracks are often referred to as "hair" cracks, by reason of their fineness and semblance to hairs, and occur both in plain and reinforced concrete. They are also known as "crazing," and are of very frequent occurrence. They appear to arise from the surface skin of cement mortar being richer in cement than the mortar of the body concrete, thus exposing almost a neat cement skin, which expands at a different rate on exposure to the sun's rays than the body concrete. It is worse upon the uppermost face in a mould, where the lighter and weaker particles of cement work up to the top and form a skin known as "laitance." If work be kept under water, and sometimes shielded from the sun, this crazing may not occur. To overcome its unsightliness the surface skin should be removed either (1) by brushing the concrete when green with wire brushes; (2) by rubbing by means of a stone or piece of concrete and sand and water; (3) by dressing with hand pneumatic operated chisels andammers; (4) by brushing the surface with hydrochloric acid and subsequent washing with clean water. The last two named methods are best with completely hardened concrete.

The cracks extending through the body of concrete may be ascribed to (1) Faulty design and construction so far as statical resistance is concerned; (2) expansion of cement or concrete; (3) corrosion of embedded steel; (4) shrinkage from setting and hardening in air; (5) difference of temperature in different parts.

### Faulty Design and Construction.

1. Under the first head the following causes have been noted: (a) Settlement of the foundations; (b) too high a stress in the reinforcement, resulting in excessive deformation; (c) too thick a covering of concrete, in particular where the effective depth of beams is very small; (d) too early removal of forms. The age of the concrete when the forms are removed must be sufficient to give the usual factor of safety to the stresses caused by dead load and any accidental load as may at that time be anticipated. Generally the following recommendations are made, subject to the approval of the engineer or architect responsible for the works.

For mass concrete walls not subject to rust, and where the height does not exceed 2 ft., the forms should not be removed under twenty-four hours. Where the wall is subjected to pressure, forms should remain in place at least a week, although a fortnight is preferable. For mass concrete arches of more than 20 ft. span one month is recommended, and for reinforced concrete the following is recommended: slabs, a minimum of seven days, but otherwise, for slabs carrying only their own weight, an allowance of two days per inch thickness, or one day per foot of span, whichever is the greater. For sides of dams, walls, and columns not under side-rust a minimum of four days; bottoms of beams, a minimum of two weeks,

though a month to six weeks may be necessary under special circumstances; for arches the time of removal of the centering is better left to the judgment of the engineer, keeping in view the ratio of rise to span and special circumstances. If it is intended that the structure should be used for carrying heavy weights, emergency props should be left in for such time as the engineer or architect may direct. The foregoing periods to be increased by at least the time during which frost or rain has intervened. (e) Defective design of forms with inadequate allowance for contraction and expansion due to variation of moisture. Dry timber may expand and crack the concrete unless wetted beforehand. (f) Careless removal of forms, which may result in cracking the concrete by shock of falling timber, or by levering and prising on the green concrete. (g) Vibration, resulting in deficient adhesion and excessive deflection. Forms should be very rigid. (h) Insufficient allowance for continuity, fixity, and general monolithic nature of concrete work done *in situ*. Over supports the maximum degree of continuity and fixity should be provided for. Frequently cracks will be found over supports of continuous reinforced concrete beams and floor slabs, owing to the omission or insufficiency of steel there. Concrete floors are often built in chases in walls and carried over walls, others standing above, and sufficient fixity is given to cause cracks, if provision has not been made in the reinforcing. Columns and piers when built monolithic with beams will give more or less fixity to end of beams resting thereon, both at end and intermediate supports. (i) Too close spacing of steel, so that there is no room for the concrete to get round and adhere or bond with the bars.

### Expansion of Cement or Concrete.

Under this heading the following causes of cracking are noted: (a) Overlimed and coarsely ground cements which were frequently met with years ago caused expansion, to overcome which it was necessary to leave room for expansion, *i.e.*, expansion joints. Especially was this precaution adopted round the edges of floor slabs adjoining walls. (b) Coarse materials containing sulphur compounds, unburnt fuel, oxidisable or hydratable iron compounds, unslaked lime, and other deleterious substances. Breeze, clinker, and slag frequently contain sulphur and metallic iron or oxide of iron, while boiler ashes may contain both sulphur and unslaked lime (the latter derived from limestone in the coal). Some bricks contain sulphides and sulphates and lime, and should not be used broken for concrete. Old bricks also sometimes have old plaster adhering to them; the sulphate of lime may cause no trouble in plain concrete while it is kept dry, but in the presence of water reacts chemically with the aluminates of the Portland cement, forming sulpho-aluminate of lime, which is attended by increase in volume, and may cause blowing if in large quantity, and even a small quantity may result in cracking. Free lime is the same way will swell or contract with water. Black magnetic oxide of iron will become converted into hydroxide of iron in the presence of moisture. Indeed, any iron compounds are dangerous in reinforced concrete as likely to react electrolytically with the steel in the presence of moist air or dampness, and sulphur causes speedy corrosion.

### Corrosion of Embedded Steel.

Should the steel in reinforced concrete corrode by reason of porosity of the concrete or the presence of deleterious substances in the coarse materials of which it is made, or by electrolytic action, the concrete cover to the bars will crack and burst off.

### Shrinkage from Setting and Hardening in Air.

This is probably the most frequent cause of cracking. Concrete will expand slightly in water and contract on drying out, so that cracking is frequently not evidenced from this cause until the concrete is allowed to dry, varying usually up to two months, and in thick mass walls moisture and heat are retained for a long period and may delay cracking up to six months and even longer. It is usual to keep concrete wet for several days after manufacture in order to ensure its gaining maximum hardness, and it is specially important to prevent rapid drying by sun and wind, so that the surface of concrete should be shielded against such exposure. A dry mixture of concrete shrinks less than a wet mixture, and concretes richer in cement contract more than lean mixtures. For reinforced concrete work medium wet mixtures are desirable, and therefore concrete richer in cement than 1 to 5 is not advisable for curtain walls. The coefficient of contraction of concrete on exposure to air appears to be about 0.0002 to 0.0005 at one month, and increases to about 0.0004 to 0.0006 at 1½ years. The variation recorded is between poor and rich concretes. Such contraction is usually prevented from taking place uniformly throughout; in retaining walls and pavings it is prevented by friction of the soil, in other cases by the holding of other parts. Plain concrete will usually hold together for some distance, so that contraction joints need only be inserted at intervals; the following are advised as suitable distances apart of such joints in plain concrete:—Paving, 4 to 5 ft., curtain walls, 10 ft., exposed retaining walls, 15 to 20 ft., basement retaining walls (not exposed) and dock walls or dams, 50 ft.

### Variation of Temperature.

Considerable difference of temperature will cause cracking and should be avoided as much as possible. Heavy reinforcement is not always an effectual preventative. Most reinforced concrete chimneys in which the internal temperature is over 500 deg. F. seem to be cracked vertically, externally, and often horizontally as well, though possibly the latter could be avoided. This cracking is probably due to the difference in temperature between the outside and the inside, which may be considerable with a cold wind blowing. A continuous lining with cavity between it and the outer shell might prevent serious cracking.

Great difference in the temperature between the underside and top of concrete floors is also likely to cause serious cracking. Even if reinforcement is provided it will be well to insert expansion and contraction joints every 50 ft.

Concrete lining, and walls of ponds, tanks and the like exposed to water do not shrink by setting and hardening of the concrete, but change of temperature between summer and winter will cause cracks unless joints are provided. If plain concrete, a joint every 15 ft. is desirable; if reinforced, joints might be 50 ft. apart, though closer is preferable. To prevent percolation, asphalt dowels in the joints have proved efficient.



## THE ARCHITECTURAL TREATMENT OF REINFORCED CONCRETE.\*

BY W. R. LETHABY, F.R.I.B.A.

It must be admitted that, notwithstanding its virtues, concrete has certain special defects. Such, for instance, are poor surface and colour and the tendency to crack. The least cracking seems to destroy our pleasure in a fabric which should be continuous as a china vase. Again, concrete construction seems to call for a large supply of commonest labour, a society of navvies organised by gangers. So far as this is necessarily the case, concrete structures can never, I think—however high their functions may be or however perfect their forms—become a noble type of architecture. For I must repeat again and again, a fine architecture is not a question of shapes, but of the quality of the effort that has gone into it over a long space of time. Every phase of art is, so to say, the logic of a principle. Still, even if concrete construction does depend on essentially slave labour, we must do the best we can while continuing to use it.

### *Concrete and Masonry Compared.*

As a starting-point it may be well to compare the special characteristics of concrete construction with those of masonry. The idea in masonry is the bringing together of squared blocks with sharply cut angles. The ideal is articulation and definition of form. For the most part, mouldings, the mouldings which architects so liberally deal in, have little meaning beyond expressing the mason's delight in sharply cut forms truly laid. Carving also, except when some story is to be told, for the most part arises from the stone-cutting instinct.

Concrete, on the other hand, is built by continuous aggregation. It is a plastic material and is unfitted to take sharp edges and delicate forms. We may perhaps conceive of concrete construction as a sort of colossal pottery. All architecture in the past has not been the architecture of cut masonry. In high antiquity, as now in many parts of the world, the current requirements of building were satisfied by erections of clay—first merely put together in the crudest way, and later by a preliminary division into sun-dried bricks. This clay building usually resulted in a type of construction in which the walls were gradually gathered over into coverings in the forms of rough arches and domes, and in which indeed we probably find the historical origin of the vault.

### *Roman Concrete Construction.*

The Roman builders carried this method—that is, a highly civilised version of it—forward to great and fine results. The Roman theory of building was to form the walls, vaults, and domes of a sort of built concrete—that is, a rubble of small stones so perfectly drowned in good cement mortar that it set as a whole. A typical Roman building was thus all of a piece and continuous throughout. The walls and vaults so constructed were afterwards finished by the frank application of skins of other material, as plastering, sheeting with thin marble slabs, and many varieties of mosaic work. Where these methods of decoration have been used there has been a natural tendency to eliminate moulding and carving. In covering the vaults of a Byzantine church, for instance, with mosaic of gold and bright colours, this beautiful material was painted as it were

over the whole surface of the upper parts of the building from side to side and end to end; it was carried around the edges of arches by rounding the angles, and thus passed over them simply and easily. The Arab builders, again, delighted to case their buildings with brilliantly coloured glazed tiles, which covered the wall surfaces and even the domes. And here again is expressed the continuous nature of the body of a structure, which should, I feel, be characteristic of buildings in concrete.

### *The Need for Surface Treatment.*

Consider again two leading types of furniture, examples of which come daily before our eyes—the joiner's type, which, however elaborate and delicate, depends on articulation of parts, and the highly developed cabinet-maker's art of veneered surfaces. I must point out here, as veneering has become somewhat of a by-word and synonym for sham, that this was not at all its origin nor its essential meaning. Its proper office is to cover surfaces with beautifully arranged skins of precious material. There is no reason because we put a carpet over a floor to suppose that its whole substance is carpet, nor need we be distressed because our books are not solid leather. My point about veneered furniture is this—that an entirely different principle of design is brought into play in it than is fitting for what I have called the joiner's type. You may be surprised in examining exquisitely finished satinwood cabinets in our museums when you notice how simple their general forms are, and that they are almost wholly without mouldings. Thus the methods of structure everywhere modify external forms. I am not recommending the veneering of concrete, but only pointing out that many types of structure have done without subdivision as much as possible and without mouldings altogether. These are the examples which we might best study so far as we depend on precedent. On the other hand, I think that the method of veneering with thin marble slabs, mosaic, or fine tile work might be frankly adopted occasionally.

### *General Architectural Forms.*

I have said enough to show my general idea that concrete structures call for quite a different type of design than ordinary works of stone and brick. Cornices should be mere big rounds of coves, all angles should be rounded, any superadded decoration should be frank veneers and surface applications—platings of marble, bands of gold mosaic, panels or relief sculpture, rough-cast, sgraffito, glazed tiles, and terra-cotta might be appropriate. Big rounded forms seem suggested by this plastic material.

## FIRE TESTS WITH REINFORCED CONCRETE DOORS.

The report has just been issued on the fire tests with reinforced concrete doors which were conducted by the executive of the British Fire Prevention Committee last year. There were three types of door, all constructed to the design of Commandant Welsch, chairman of the Belgian Technical Committee on Fire Protection. They were:—

(1) A door with T-iron rim and expanded metal and flat iron reinforcement filled in with concrete and hung on runners and made to slide, fixed on the outside of an opening.

(2) A door as above, but fixed on the inside of an opening.

(3) A set of two doors as above, one on the inside and one on the outside of an opening, 14 in. apart.

The doors each measured practically 7 ft. by 4 ft. and overlapped the opening about  $4\frac{1}{2}$  in.

The single doors (1 and 2) were tested for  $2\frac{1}{2}$  hours at temperatures that ranged between 1,800 and 2,000 deg. Fahr., and the double doors (3) for four hours at a similar temperature. In each case, at the end of the test, water was applied from a steam fire engine to the inside face of the doors.

The tests showed that the doors should be a most useful addition to the ordinary fire-resisting materials, when some of their minor defects have been remedied.

A limited number of copies of the report can be obtained from the Secretary of the British Fire Prevention Committee, 8 Waterloo-place, S.W., price 3s. 6d. each. The committee announce that they will publish shortly a volume dealing with the results of their fire tests on sixteen different forms of partitions; this volume to be a complementary volume to two already published on the results of fire tests with twenty-eight floors and sixty fire-resisting doors.

## REINFORCED CONCRETE FENCING POSTS.

Patent reinforced concrete posts have been used for fencing round the lake in the picturesque new park at Grovelands, Palmers Green, which was recently opened to the public. The posts are of York stone chippings and Portland cement concrete 5 ft. long and 5 in. square, having a neat cap of ornamental design. They are



REINFORCED CONCRETE POSTS, GROVELANDS PARK, PALMERS GREEN, LONDON

spaced 8 ft. 6 in. apart on the straight, but closer on sharp curves. They are reinforced with Rib-mesh Expanded Steel (supplied by the Expanded Metal Co. Ltd., of London and West Hartlepool), bent into column form, and are very strong and durable. For situations near water these posts are especially suitable, as they are impervious to rot or decay, and indeed become stronger with age. The posts carry a  $1\frac{1}{2}$  in. by  $1\frac{1}{2}$  in. square iron bar set anglewise. They never vegetate, but retain their natural stone colour; and there is no necessity to paint them. For park or roadside they form a most economical fencing. The work has been carried out by Messrs. Tidnam and Co. concrete specialists, of Wisbech, from the designs and under the superintendence of Mr. C. Griffin Lawson, A.M.I.C.E., engineer and surveyor to the Southgate Urban District Council.

\* Extracts from a paper recently given before the Architectural Association.



## COMPETITIONS.

*New Municipal Buildings, Rangoon.*  
The awards in this competition are as follows:—1st. Mr. L. R. McClumpha, Rangoon; 2nd, Messrs. Warwick and Ill, London, and Messrs. Swales and Illar, Rangoon; 3rd, Mr. Maurice S. R. Iams, London.

*New School, Kirkcaldy.*

The Kirkcaldy and Dysart School Board have invited the local architects to compete for a new school to accommodate 50 pupils, eleven sets of designs were submitted. Mr. John J. Burnet, A.R.S.A., D., of Glasgow, the assessor, has selected the designs in the following order: 1, Mr. William Williamson, R.I.B.A.; 2, Mr. William Dow; 3, Mr. William Welsh. Acting on the assessor's report, the board have appointed Mr. Williamson architect for the work.

*Proposed Public Baths, Newcastle-on-Tyne.*

The following is a summary of the conditions in the competition for proposed new baths at Benwell, Walker and Heaton, Newcastle-on-Tyne:—Assessor, Mr. Herbert W. Wills, F.R.I.B.A. Each set of baths forms the subject of a separate competition, and competitors are at liberty to compete for either one, two, or all of the three schemes. Drawings required: Elevation, plans and section to 1-16 scale, executed in the plainest and simplest manner possible. Drawings to be on Imperial sheets of paper, unmounted, and sent in sealed. Sums allotted:—For the Benwell baths, £8,000; Walker baths, £8,000; Heaton baths, £7,000. Designs to be publicly exhibited within a period not exceeding a month after the publication of the final award. Premiums of £50, £30, and £10 in each case. Selection of the consulting engineer to be approved by the Council. Designs to be sent in by June 14th, to the Town Clerk, Town Hall, Newcastle-upon-Tyne. Schedule of accommodation, including:—Swimming bath for men, about 30 ft. by 39 ft., and one for women, about 30 ft. by 20 ft., with usual accommodation; shower baths, establishment laundry, office, and clerical house. The foregoing sizes are to be taken as a general guide, but may be varied at the option of the competitors. Each scheme will be judged on its merits so far as it substantially provides the accommodation asked for. Attention is directed to the peculiar nature of the Heaton site, which it is considered will require some special system of construction and design (such as reinforced concrete) necessary in consequence of the nature of the foundations and the proximity of the old pit shown on site plan.

*Street Improvement Scheme, Blackburn.*

The following is a summary of the conditions in this competition:—The scheme embraces:—(1) The provision of routes through traffic so as to relieve the congestion in the central and shopping area by widening existing roads or by the construction of new ones. (2) Street and drainage alterations for improving the shopping traffic; (3) improved conditions for trading on the wholesale and retail markets. This may include, if thought desirable, the removal of the present market buildings and the substitution of others. (4) Provision of facilities for the tramway service; (5) the general improvement and amenity of the centre of the town. Drawings required:—(1) Plans to a scale of 1-1250, which must show proposed new streets and widenings, alterations to frontages, deviations of tramways, and any sites which it may be proposed to allocate to important buildings.

(2) Plans to 1/4th scale of traffic centres or important street junctions. Schemes to be sent in to the Borough Surveyor, Municipal Offices, Blackburn, by June 2nd. Assessor, Professor Adshead, F.R.I.B.A. The whole of the schemes, plans, reports, and other materials sent in by the competitors will be retained by the Corporation for a period not exceeding three months from their receipt, and the Corporation will be at liberty to make copies of the same and may use them in any way they think fit. If the Corporation are advised that the schemes submitted are of sufficient merit, they will award premiums of £100 for the scheme adjudged the best, and £50 and £25 respectively for the next two in order of merit. Whether their schemes are adopted or not the Corporation do not hold out to competitors any prospect of employment in connection therewith. Particulars from Town Clerk, Blackburn.

## LIST OF COMPETITIONS OPEN.

APRIL 29.—MUNICIPAL OFFICES, BARNET.—Barnet Urban District Council invite designs for new municipal offices, to be erected at a cost not exceeding £4,000. Premiums, £25, £15, and £10. Particulars from Mr. W. F. Wilkins, M.S.E., 40, High Street, Barnet. Designs to be delivered to Mr. H. W. Poole, Council Offices, 40, High Street, Barnet.

MAY 31.—LAY-OUT OF PARK, BACUP.—The Corporation invite designs for laying out the Moorlands and Stubbylee Estates as a public park. Premiums £40, £20, and four of £10. Summary of conditions in our issue for April 16th.

MAY 31.—“IDEAL HOMES” EXHIBITION.—COTTAGES AND BUNGALOWS.—Designs are invited for (1) A workman's detached cottage; (2) a pair of workmen's semi-detached cottages; and (3) a bungalow for four single persons. The prize of £50 will be given in each case. Assessor, Mr. Leonard Stokes, F.R.I.B.A. Summary of conditions in our issue for February 12th.

JUNE 2.—STREET IMPROVEMENT SCHEME, BLACKBURN.—The Corporation invite designs for street improvement scheme for Blackburn. Premiums £100, £50, and £25. Assessor, Professor Adshead, F.R.I.B.A. Conditions (of which a summary is given in this issue) from Town Clerk, Municipal Offices, Blackburn.

JUNE 7.—HOSTEL FOR MALE STUDENTS, EXETER.—Mr. Edwin Cooper, F.R.I.B.A., is assessor. Particulars (one guinea, returnable), H. Lloyd Parry, Town Clerk, Exeter. Summary in our issue for April 2nd, and plan of site in the issue for April 9th.

JUNE 14.—BATHS, NEWCASTLE.—The Corporation invite designs for baths at Benwell, Walker, and Heaton. Assessor, Mr. Herbert W. Wills, F.R.I.B.A. Conditions, with site plans, obtainable (postal order 1s.) from A. W. Oliver, Town Hall, Newcastle-on-Tyne. Summary in this issue.

JUNE 14.—MUNICIPAL BUILDINGS, DEVONPORT.—The Corporation invite designs for municipal buildings and a guildhall. Premiums, £350, £150, and £100. Assessor, Mr. Ernest Newton, A.R.A., F.R.I.B.A. Conditions (£2 2s., returnable) from R. J. Fittall, Town Clerk, Municipal Offices, Devonport, to whom designs are to be sent. Summary and plan of site in our issue for March 12th.

JUNE 19.—LAYING OUT ESTATE, NEWCASTLE.—Corporation invite designs for laying out a portion of their Walker Estate. Premiums, £50, £30, £20. Particulars (one guinea, returnable), A. M. Oliver, Town Clerk, Newcastle-on-Tyne. Summary in our issue for April 16th.

## NEWS ITEMS.

*An Appointment.*

Mr. Ernest E. Morgan has been appointed borough architect for Swansea at a salary of £500 a year.

*An Architect's Marriage.*

Mr. Septimus Warwick, F.R.I.B.A., of London, W.C., was married last week to Miss Evelyn Mooney, of Montreal, at the Chapel Royal, Savoy.

*Two Picture Exhibitions.*

Two delightful picture exhibitions now open are those of the Royal Society of Painters in Water Colours, at 5a, Pall Mall East, and of the Royal Society of British Artists, at the galleries in Suffolk Street, Pall Mall. Many architectural studies are included among the pictures, especially at the first-named exhibition.

*New Works on the "Piketetty" System.*

The Corporation of Harwich have decided to construct their new landing stage (length 250 ft.) in reinforced concrete, the plans of Messrs. Paul Piketty and Co., reinforced concrete engineers, London, having been adopted. The work will be carried out forthwith by Mr. T. W. Pedrette (licensed contractor for the "Piketetty" system), of Enfield, N.

The baths, subways, floors, etc., of the new baths now in course of erection for the Corporation of Pontefract, from the design of Mr. A. Nunweek, of Sheffield, are also being constructed on the "Piketetty" system.

*Award in the Coventry Building Trade.*

Sir William Collins has given his judgment in the arbitration proceedings which he recently conducted in the Coventry building trade for improved conditions. Some branches asked for 1d. per hour advance in wages and some for more. Sir William gives an increase of 1/4d. per hour to carpenters, joiners, bricklayers, plumbers, and labourers, but disallows the application of painters, who got an advance last year. Leading scaffolders obtain an extra 3/4d. per hour. Overtime is to be paid, when asked for by the masters, at the rate of time and a quarter up to 8 p.m., time and a half from 8 to 10, afterwards double-time pay; and when asked for by the men, ordinary day pay. Lodging allowance is increased from 3s. to 4s. per week. On the revised scale, carpenters, joiners, bricklayers, and plumbers will receive 9 1/4d. per hour, painters 8 1/4d., Leading scaffolders 7 1/4d., and labourers 6 1/4d.

*The Ghent Exhibition.*

The Ghent International Exhibition is to be opened on Saturday next, April 26th, and will remain open for at least six months. The British section is in a pavilion on one side of the Court of Honour, facing the French pavilion, and is divided into a machinery hall and four surrounding galleries, where exhibits by a number of Government Departments, exhibits of British pottery and of arts and crafts, and a library of British trade newspapers will be housed. The last-named is a new departure in British exhibits and should prove the means of bringing the advertisements of British manufacturers before Continental buyers. "The Architects' and Builders' Journal," "The Architectural Review," "The Practical Exemplar of Architecture," and other publications of Technical Journals, Ltd., occupy a prominent position in the exhibit. The library has been specially designed and decorated by Mr. Frank Brangwyn, A.R.A.



# THE BUILDING TRADES EXHIBITION AT OLYMPIA

(SECOND NOTICE).

## A GENERAL SURVEY OF THE EXHIBITION.

TO stand in the gallery of Olympia and take a general survey of the great Building Exhibition is to experience a sensation similar to that produced by a hasty scrutiny of some ponderous encyclopædia. The eye may comprehend it at a glance, but the mind is positively bewildered by the infinite variety of its contents. For here, concentrated beneath the roof of one building, may be found every conceivable detail involved in the construction and equipment of buildings—"from the drains in the basement to the chimneys on the roof," to use Mr. Montgomery's own expressive phrase. The exhibition is far too large and complex to yield itself readily to a general survey, and he who would digest the whole must be prepared to take only small quantities at a time. The present notes, therefore, must be regarded not as an attempt to give a comprehensive estimate of the whole exhibition in all its manifold aspects, but rather as a casual examination of some of the more interesting and spectacular stands and their most noticeable contents. Before coming to a consideration of the exhibits, however, we have a small grievance to ventilate. The system adopted of numbering the stands is excellent, but unfortunately, in quite a large number of cases, the exhibitors have thought fit to dispense with this very necessary identification, and even with the aid of a catalogue we have frequently experienced a good deal of trouble in finding some particular exhibit. The cards supplied for display are quite small and neat, so it cannot be contended that they have been abandoned on the score of unsightliness. We would urge, therefore, that, if only for the convenience of visitors, the number cards be restored without further delay.

In accordance with English custom, no control has been exercised over the design and character of the stands, and in consequence there is rather too much variety. Some are high and some are low, and others are not stands at all. A few firms occupying space have simply dumped their goods down on the floor and so left them. We do not suggest that this is a reprehensible practice; indeed, we would prefer that a number of firms who have erected stands had done likewise. Taken in the bulk, however, the stands are an obvious improvement on those of previous exhibitions, and many are quite excellent examples of architectural design. The nature of a few exhibits has necessitated the erection of stands as mere receptacles, but the majority of them are either composed of, or covered with, the particular material which the exhibitor has to sell. We will now proceed to deal generally with a selection of the stands in roughly classified order.

### *Reinforced Concrete, Fireproof Floors and Partitions, etc.*

The stand of The Expanded Metal Co., Ltd. (G 157), is one of the most prominent in the exhibition. Its four-way

sign, projecting high in the air, and inscribed with the words "Expanded Metal," is a very ingenious device, and can be seen from almost every point of view. The stand is reinforced throughout with Expanded Metal, and examples of "Exmet" brick reinforcement are also on show. A stairway leads to the roof, from which haven of refuge jaded visitors may survey the exhibition in peace.

As noticed in our last issue, a very fine architectural stand (G 154) has been built by The Trussed Concrete Steel Co., Ltd., from the design of Mr. Thomas Wallis. It is constructed with Hy-rib, showing various examples of the use of that material in building construction. The Hy-rib has been covered with plaster, in imitation of Caen stone, by Messrs. John Tanner and Son. From the point of view of classic design, this stand must be given the first place in the exhibition. The Siegwart Co. have a few exhibits at the rear of the Hy-rib stand, the most important being three tall reinforced concrete standards—one for use in connection with overhead tramway wires or for the suspension of arc lamps, another for lighting purposes only, five arc lamps being arranged at the top, and the third for use as a telegraph pole. These exhibits are among the most dominating features of the exhibition.

As a practical demonstration of the possibilities of their own material, both structurally and architecturally, the stand of The Kleine Patent Fire-resisting Flooring Syndicate, Ltd. (F 119), would be difficult to rival. It is built with reinforced hollow bricks throughout, and is of a very pleasant design, a Mansard roof, with dormer windows, forming an extremely effective feature from the outside. Some eighty odd flower pots, containing ferns, tulips, and daffodils, are arranged round the top of the cornice, and although the stand is sufficiently attractive in itself without recourse to any extraneous device, the flowers impart an air of gaiety which is quite refreshing, and the example thus set might be followed in other cases with considerable advantage.

The Siegwart Fireproof Floor Co., Ltd., have an exhibit the excellence of which is expressed in the number of their stand (A 1). The advantage of the Siegwart Floor is that it dispenses with the use of centering, the beams being delivered to the site ready for fixing. The method adopted is simple in the extreme. The beams are placed side by side on the supporting walls or joists below, and the joists are grouted in with cement mortar, the floor then being ready for use.

The stand of Messrs. J. A. King and Co. (F 112) is constructed with "Mack" partitions, the windows being filled with "Ferro-glass." It is left in perhaps too unfinished a condition to rank very high as a spectacular exhibit, but for the purpose of showing the construction and uses of the firm's various materials it is remarkably effective. Messrs. Homan and

Rodgers (F 130) are also to be commended for the practical and even educational character of their exhibits, which consist of a hollow-brick fire-resisting floor, patent reinforced concrete floor, and an example of patent strong-room construction.

The stand of the General Fireproofing Co. is another of those which remain unfinished for the purpose of showing the construction, the concrete and plaster being only partly filled in round the reinforcements employed.

Another highly practical exhibit is that of Messrs. Rd. Johnson, Clapham, and Morris, Ltd. (H 173), who show models of reinforced concrete floors on the "Lattice" and "Keeton" systems, and examples of "Bricktor" reinforced brickwork. A special feature of the exhibit is an improved type of lattice, in which the wires, where they cross, are secured together by a special form of link.

Messrs. Reinforced Metal, Ltd. (F 136, 137) show sections of a number of columns, reinforced by a series of spiral formed around a steel core. Some of the columns have sustained tremendous test loads; others are shown in various stages of construction. The whole exhibit is one of great interest.

### *Bricks, Tiles, and Slates.*

These materials are well represented the exhibits, in most cases, taking the form of attractive pavilions, designed in various styles of domestic architecture. The stand of The Ravenhead Sanitary Pipe and Brick Co., Ltd. (D 54), is one of the most delightful in the exhibition, the texture and detail of the brickwork being particularly interesting. We publish in this issue an illustration of the stand which was designed by Messrs. Fair and Myer, A.R.I.B.A. The Pressed Brick Makers' Association, Ltd. (E 84), have a neat and attractive stand, a set of miniature brick-making machines being in constant operation. Varieties of slate are exhibited on the stand of Messrs. Roberts, Adlard and Co. (E 100), which comprises two small pavilions, the floor being covered with random slate paving a healthy-looking growth of moss sprouting between the joints. Mr. Reginald C. Fry has designed for the Penrhyn Slate Quarries (E 100a) a charming little cottage, which illustrates in a most convincing way the great variety of purposes to which their slates may be adapted. The cottage is of half-timber construction, with slates ingeniously worked in herringbone fashion for the walls. Slates are also used for the roof, for capping of beams for dwarf piers, and for hanging and other signs.

Another excellent exhibit is that of The Oakley Slate Quarries Co., Ltd. (H 169) consisting of a sturdy little rough-cast cottage, open in front, and covered with blue grey slates.

Messrs. D. and C. Rutter, Ltd. (J 200), have an effective stand de-



igned in the form of an open loggia, several varieties of bricks being employed. Messrs. James Brown (London), Ltd. (J 204), show a neat brick pavilion, which has been specially built, in 2-in. red bricks, from the design of Mr. P. Morley Horder, F.R.I.B.A. Another interesting brick exhibit is that of The Sussex Brick and Estates Co., Ltd. (J 211), which shows the application of bricks to Gothic arches, parapets, and buttresses.

#### *Patent Roofing Materials.*

Artificial materials are now being so extensively employed for roofing and other purposes that it is by no means surprising to find them very adequately represented at the exhibition. We reproduce in this issue a photograph of the stand of Messrs. G. R. Speaker and Co. (D 63), one of the most attractive in his particular group. It shows very clearly the application of "Eternit" to roofs and ceilings and to the outside and inside of walls. For fixing the sheets to steelwork a special method is employed. Briefly, this is as follows: Thin metal clips containing bolts are attached crosswise to the T or angle iron; the "Eternit" sheets are then placed upon them and covered with narrow strips of the same material, the whole being secured by hemispherical nuts, screwed on to the projecting ends of the bolts. This exhibit is well worthy of close examination.

The Ruberoid Co., Ltd. (G 152), exhibit an attractive pavilion, painted white, and having a Mansard roof, the firm's particular speciality being displayed to considerable advantage. Bell's United Asbestos Co., Ltd. (H 168), show a good half-timber structure into which "Poiilite" asbestos-cement sheets, in addition to tiles of the same material on the roof, are effectively incorporated. A pavilion, not particularly well designed, but admirably adapted to showing the application of "Uralite" and "Asbestone," has been built by The British Uralite Co., Ltd. (E 108). Messrs. Vulcanite, Ltd. (E 105), exhibit, in addition to rolls of varieties of their roofing and damp-course materials, models illustrating the application of "Vulcanite" and "Rexilite" patent roofings.

A small but neatly-designed stand, having folding doors, has been built entirely with asbestos roofing tiles and wall and ceiling sheets by the Calmon Asbestos and Rubber Works, Ltd. (C 29). A hot-house-like structure, showing their excellent system of fixing glass without putty, is exhibited by Messrs. Wm. Edgcombe Rendle and Co., Ltd. (H 175).

#### *Paints, Varnishes, Enamels, etc.*

Nothing is more noticeable at the exhibition than the comprehensive show of paints, varnishes, enamels, and similar decorative materials, some score or more of firms being represented. The stands, almost without exception, are very tastefully carried out, and many really artistic schemes of colour decoration are to be seen. Where all are good, it were almost envidious to particularise, but attention may appropriately be directed to some of the more striking exhibits, though it is not necessarily implied that the others are undeserving of attention.

Messrs. John Line and Sons, Ltd., (D 58) have a white-painted pavilion with an open loggia, many attractive wall papers being on view within. Messrs. Lewis Berger and Sons, Ltd. (D 59), exhibit a number of brilliantly varnished floors, which must surely dispense with the need for mirrors, so wonderfully vivid

are their reflecting qualities. An attractive architectural stand, decorated with grey and white washable "Duresco," is exhibited by The Silicate Paint Co. (E 98). We reproduce a photograph of it in this issue. Messrs. Mander Bros. show a well-designed and tastefully decorated pavilion (E 101).

The stand of Messrs. Sissons Bros. and Co., Ltd. (F 109), represents two apartments in a house of the Georgian period, and is decorated attractively with Hall's distemper and a variety of varnishes, enamels, and paints. Messrs. Arthur Sanderson and Sons, Ltd. (F 115), exhibit excellent wall papers and interior decorative materials, the stand, painted chiefly in various shades of green, incorporating a number of "Gilmour" hardwood doors. Messrs. Wilkinson, Heywood and Clark, Ltd. (F 121), have a good architectural stand, finished with dull and glossy enamels. Demonstrations of the permanent character of their washable paints and distempers are given on the stand.

"H.M.S. Endelline" (G 138 and 139) affords convincing proof of the enduring qualities of Messrs. Thos. Parsons and Sons' varnishes and enamels; the stand, although it has been constantly on exhibition in various parts of the kingdom, scarcely having been touched since it first appeared at the Building Exhibition two years ago. Messrs. William Harland and Son (G 143) have a fine Classic pavilion, designed by Mr. E. Keynes Purchase, F.R.I.B.A., and illustrated in this issue.

Messrs. Gross, Sherwood, and Heald, Ltd. (G 146), show, among other exhibits, part of a Georgian exterior, treated with blue, white, and grey enamels. Messrs. Pinchin, Johnson and Co.'s familiar Temple of Minerva (G 150) is again exhibited, the firm's paints, enamels, and distempers being effectively displayed upon and around it. Messrs. Ripolin, Ltd. (H 172), show a neat domed structure supported on four columns and surrounded on all four sides by a low balustrade.

#### *Miscellaneous.*

Under this heading a number of exhibits which do not require particular classification may now be noticed. The Bath and Portland Stone Firms, Ltd. (B 13), show good examples of masonry executed in Bath and Portland stone. The Art Metal Construction Co., Ltd. (E 104) (who have recently acquired the goodwill of the iron staircase section of The St. Pancras Ironworks Co.), have an attractive display of steel fireproof office furniture, etc. We reproduce a photograph of the stand in this issue. Various examples of the familiar "Devon" fire are to be seen at the stand of Candy and Co., Ltd. (F 114). "Ronuk," Ltd. (F 116), have erected a good plain oak stand, supported on four square columns. All the woodwork is treated with "Ronuk" sanitary polish, the excellence of which is manifest.

Messrs. R. Waygood and Co.'s electric passenger lift (F 125) is a conspicuous feature of the exhibition, and it is frequently used by visitors for conveyance both to and from the gallery. Messrs. H. and C. Cleaver, Ltd. (F 124), exhibit fine examples of carved chimneypieces and Georgian paneling. At the stand of The Albany Forge, Ltd. (G 141), some excellent ironwork is on show, including grilles, balustrading, etc., the designs all being of a very vigorous character. Messrs. F. and C. Osler, Ltd. (G 140) exhibit a variety of electric fittings, brackets, standards, etc., in polished brass, oxidised silver, and other finishes. Inter-

esting demonstrations with concrete block making machinery are given at the stand of The (U.K.) Winget Concrete Machine Co., Ltd. (J 193), ordinary sand being used instead of concrete. One machine will turn out ten bricks at a single operation.

The British Ceresit Waterproofing Co., Ltd. (J 210), exhibit a section of a model house built in Ceresit cement mortar. The model, which is constantly revolving, is subjected externally to a strong spray of water, but the interior remains perfectly dry. The Carron Co. (K 226 and L 238) have a good display of baths and chimneypieces and examples of decorative ironwork. Many interesting masonry details, including the balustrading for the new bridge over the Medway, the balustrading for Kingston Bridge, and a section of the triforium of the Church of the Annunciation, Marble Arch (Mr. Walter J. Tapper, F.R.I.B.A., architect), are on view at the stand of The United Stone Firms, Ltd. (G 147).

Messrs. George M. Callender and Co., Ltd. (D 64), have a particularly interesting exhibit. In a tank of water are laid a number of bricks, and upon the top of the one which projects above the surface of the water is placed a piece of damp-course material, a few more bricks being laid on above. Those bricks below the damp-course are thoroughly saturated, while those above are perfectly dry.

The foregoing rough survey of the exhibition is by no means complete. We have no space to touch upon the fine display of woodworking and other machinery, upon the multitudinous details which find accommodation chiefly in the annexe, nor upon the "Surveyor" section in the gallery. The brief review which has been attempted may, however, serve to indicate the comprehensive and extremely interesting character of the exhibition.

#### *Official Visits.*

Apart from the strong representation of the R.I.B.A., in the persons of its Fellows and Associates, at the opening ceremony, official visits were paid to the exhibition in the course of the first afternoon by the Architectural Association and the Institution of Municipal Engineers.

On Monday, the 14th, the official visitors were the Institute of Sanitary Engineers.

On the 15th the exhibition was visited by the Land Agents' Society, the Hospital Officers' Association, and the National Federation of Building Trades Employers of Great Britain and Ireland, the last-named being accompanied by their president, Mr. F. Higgs.

An even busier day was the 16th, on which a conference was held between architects and manufacturers of roofing tiles, and later in the afternoon official visits were paid by the Institution of Heating and Ventilating Engineers, the Institute of Builders, and the London Master-Builders' Association, the members of the two latter being accompanied by Mr. J. E. Hartley and Mr. Ernest J. Brown.

On Thursday, the 17th, Monsieur Charles Guérineau, the president, and some twenty other members of the Union Céramique et Chaufournière de France (the French Institute of Clayworkers), lunched with Mr. H. Greville Montgomery at Olympia, and spent the rest of the afternoon at the exhibition, which they had come from Paris specially to see.

In the morning of the same day the National Brick and Tile Association held a conference at the exhibition, which was in the afternoon also visited by the District Surveyors' Association.



**F. and C. Osler, Ltd. Row G, Stand 149.***Electric Light Fittings.*

This firm very wisely specialise in the reproduction of historic models, of which, at this stand, they have many beautiful examples to show. Selections have been made from the choicest examples that the museums contain. Many Adam designs are exhibited, as well as some charming eighteenth-century Dutch work. Quaintly interesting are some antique lantern patterns and a delightful eighteenth-century candlestick in armour-bright iron. Crystal glasswork chandeliers are rapidly coming into fashion again, and of these some excellent examples are exhibited. Various metals are used in designing the fittings, the tone ranging from ormolu-colours to those of Sheffield plate and oxidised silver. Although reproductions of fine old designs perhaps predominate, many excellent new designs are shown, and the firm undertake to design fittings to suit rooms of any period or to work to the designs supplied by architects.

*Addresses:* 100, Oxford Street, W. (Gerrard 1477); Workshops, Broad Street, Birmingham.

**Norton and Gregory, Ltd. Gallery, Bay 1.***Drawing Equipment, Copying Processes, and Surveying Instruments.*

This firm's Velography process for the reproduction of plans, etc., shows two notable developments—namely, it is now adapted (1) to the production of prints on extra-rough surface drawing paper, which are particularly suitable for colouring with artistic effect; and (2) it now prints in two colours—an achievement hitherto attainable only by the costly process of lithography. The Arcus sun-printing frame is shown; and the Simplex adjustable drawing table, which has been designed with the object of offering an exceedingly serviceable table at a very moderate price, will be examined with much interest. Also are exhibited two patterns of the firm's Perfect drawing table, which can be adjusted to any height and any angle. With respect to the fine examples of surveying instruments, special attention may be directed to the theodolites, which are

fitted with new-pattern solid uprights, giving greater rigidity, and made all in one casting, so that there is no liability to get out of order through the loosening of screws.

*Address:* Castle Lane, Buckingham Gate, S.W. (Telephone: Gerrard 2029; Victoria 4715), and 34, Robertson Street, Glasgow.

**William Harland and Son. Row G, Stand 143.***Paints, Enamels, and Scumble Stains.*

This stand, one of the largest and most handsome in the exhibition, takes the form of a pavilion in Renaissance style, and was designed by Mr. E. Keynes Purchase, F.R.I.B.A., and executed under his super-

vision by Messrs. George Trollope and Sons and Colls and Sons, Ltd. The exterior is treated with the firm's Sanitary flat enamel, and the columns are finished with their Snowite glossy enamel. The interior has been decorated in light biscuit-colour, relieved with soft blue intermixed with white. The firm's specialities are thus seen to great advantage; and one of the rooms in the pavilion shows, in a series of panels, the application of Harland's scumble stains. Applied to plain wood, these stains, by means of skilful brushwork, assume the rich and beautiful appearance of the costlier woods; and where—as in hotels, restaurants, etc.—it is desired to produce a rich effect at moderate cost, these stains should be invaluable.

*Address:* Merton, S.W. *Telephone:* Wimbledon 45.

**Briquette Machinery, Ltd. Row L, Stand 236.***Briquette-making Plants.*

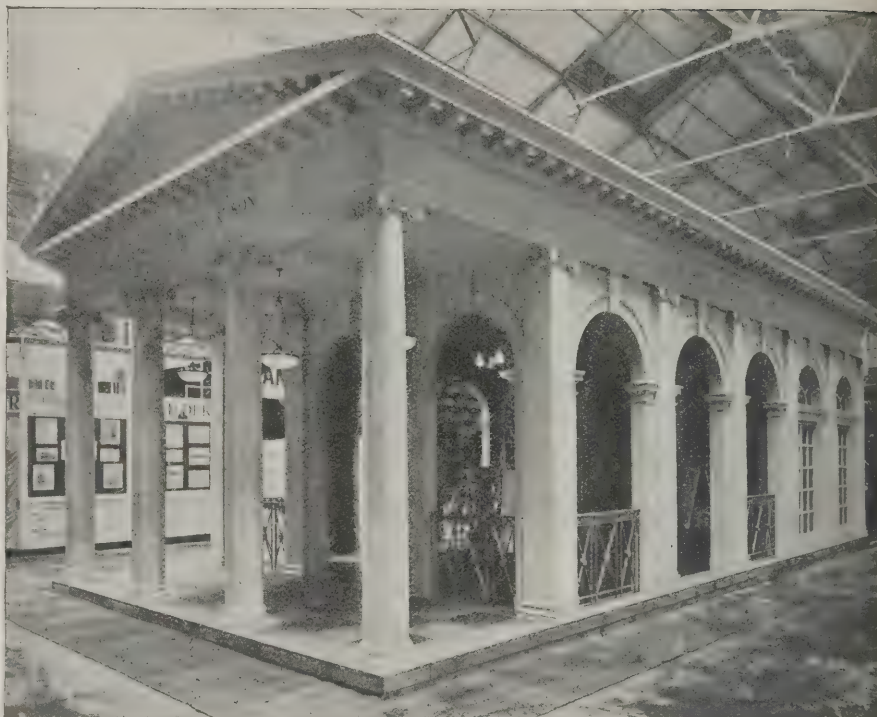
This firm exhibit samples of briquettes (made by their machinery), to be used as fuel for household, industrial, locomotive, and marine purposes. The sample briquettes are made from a large variety of materials, such as coal slack, coke-dust, lignite, sawdust, shavings, and wood fibre, and also briquettes made from town sewage. The sample briquettes are made in various sizes and shapes to suit different types of stoves and grates for household purposes, and every class of firebox for steam-raising purposes.

*Address:* 161, Water Lane, Leeds. *Telephone:* Central (Leeds) 4580.

**G. R. Speaker and Co. Row D, Stand 63.***Speaker's Eternit Pavilion.*

A notice of Speaker's Eternit slates and sheets was given on page 415 of last week's issue. The firm's pavilion, which is here illustrated, is a practical demonstration of the varied uses of Eternit in building construction, and especially of the new system of adapting Eternit to steel-framed buildings, the pavilion itself being of this type.

*Address:* 29, Mincing-lane, E.C. *Telephone:* Central 13174.



THE STAND OF WILLIAM HARLAND AND SON.



THE STAND OF G. R. SPEAKER AND CO.



**R. Waygood and Co., Ltd. Row F,  
Stand 125.**

*Lifts and Vacuum Cleaners.*

Messrs. Waygood's fine exhibit of lifts is noticed last week. It now only remains to direct attention to the vacuum cleaner of which the efficiency is practically demonstrated at their stand. Five systems are controlled by this firm: (1) hydraulic vacuum cleaner apparatus for installing in premises where high-pressure water is available; (2) suitable for buildings having a supply of steam power available; (3) a vacuum pump driven by electricity, gas, steam, petrol, or other motive power most suited to local conditions; (4) portable vacuum cleaner machines; and (5) a portable steam-powered apparatus suitable for cleaning a series of buildings, and for house-to-house cleaning work. Waygood vacuum cleaners, which are manufactured and installed by the Waygood Vacuum Cleaner Co. (R. Waygood and Co., Ltd., proprietors), are already installed in many hotels, restaurants, clubs, theatres, public buildings, business premises, and private residences. The demonstration of their efficiency at the stand is most convincing. A dry powder thickly strewn over a carpet appears as if by magic when the cleaner is lightly passed over it.

Address: Falmouth Road, S.E. Telephone: Hop 4000.

**W. E. Farrer, Ltd. Gallery, Row B,  
Stand 5.**

*Sewage Distributors.*

Two distributors are here seen at work—the improved rotary distributor of the type, and the improved automatic distributor. The body of the firm's patent tile rotary sewage distributor is also shown. These exhibits are of particular interest to those who have to deal with the difficulties of sewage disposal in connection with buildings in isolated situations—not only private houses, but such institutions as hospitals and asylums,

which are often erected in country districts. To such cases the bacteriological method of treatment is most appropriate, superseding as it does the primitive and unhygienic cesspool systems.

Addresses: 39, Victoria Street, West-

minster. (Telephone: Victoria 6011); Star Works, Cambridge Street, Birmingham (Telephone: 1903); and at Cardiff and Leeds.

**The Vibrocel Co., Ltd. Row G, Stand 144.**

*Reinforced Concrete Structures.*

Vibrocel is described as a new system of vibrated cellular reinforced concrete, particularly applicable to docks, etc. The system is a combination of cellular construction in reinforced concrete and its vibration *in situ*. During the operation of filling the space between the shutters with concrete the patent pneumatic vibrators are applied to the shuttering, rendering the concrete waterproof and increasing its strength and its monolithic character.

Address: Eldon Street House, Eldon Street, E.C.

**The Silicate Paint Co. Row E, Stand 98.**

*Duresco Washable Fresco.*

The present exhibition is particularly distinguished from all its predecessors by the number of stands of architectural merit, and conspicuous among them is the pavilion erected for the Silicate Paint Co., of which an illustration is here given. Inside and outside the pavilion is decorated with Duresco.

Addresses: Charlton, S.E., and 46, Cannon Street, E.C. Telephone: Bank 048.

**The Art Metal Construction Co., Ltd.  
Row E, Stand 104.**

Last week, on p. 418, we gave an extended notice of this firm's stand, of which we now have pleasure in producing an illustration. A note respecting this firm's acquirement of two other businesses is given in the introductory article to this second notice of the exhibition.

Address: 5 and 6, Holborn, E.C. Telephone: Holborn 6622.



THE STAND OF THE ART METAL CONSTRUCTION CO., LTD.



THE STAND OF THE SILICATE PAINT CO.



**Emdeca Metal Decoration Co., Ltd.**  
**Row E, Stand 102.**

*Metal Decorations.*

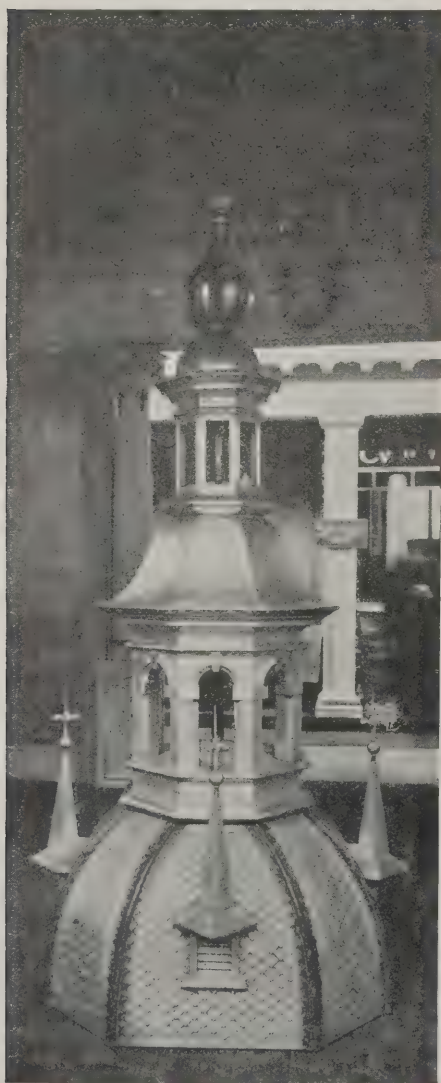
Mention was made last week of this firm's ceilings and Steleonite specialties. There are also shown some excellent examples of stamped metal brackets, cornices, pillars, and other decorative features, which are of peculiar utility where, as in the case of the Palace Pier Pavilion at Brighton, it is desired to obtain bold and striking effects together with durability. For such purposes and in such situations Emdeca is undoubtedly an ideal material; for, besides being light and strong, it is fire and wind and weather-resisting to an unusual degree. Some well-designed rainwater heads are among the exhibits, noteworthy among these being a replica of one in copper that has been executed for the Palace of Peace at the Hague. A further very interesting exhibit is a model of the tower of the Reform Church at Pretoria, South Africa, which is illustrated below.

Addresses: Offices, 97, Queen Victoria Street, E.C. (Telephone: Bank 8104); Works, Old Ford, E. Branches in Liverpool, Leeds, Newcastle, and Dublin.

**J. A. King and Co. Row F, Stand 112.**

*Mack and King Partitions and Ferro-Glass Construction.*

In the notice of this stand in last week's issue, there was a brief reference to the examples of Ferro-glass construction which



MODEL OF TOWER OF THE REFORM CHURCH, PRETORIA.

Supplied by Emdeca Metal Decoration Co., Ltd.



THE CRYSTAL GLAZING SYSTEM (J. A. KING AND CO.).

form a prominent feature at this stand. This, and the Crystal-glazing system, of which also samples are exhibited, are deserving of special attention. In the Ferro-glass system, the steel reinforcing rods are surrounded with cement, so that rusting is entirely obviated, and the expensive but necessary repeated painting of exposed ironwork is abolished where this system is adopted, and the imbedded metal is of course, also free from the irregular expansion to which exposed iron is subject, and is therefore immune from consequent cracking and scaling of the glass. In Ferro-glass construction, which is decidedly artistic in appearance and is adaptable to a variety of purposes—for floors, roofs, pavements, vaults, domes, lantern-lights, stallboards, etc.—the material surrounding the cement ribs is glass, and translucent; and in consequence of the special construction of this glass covering, most of the rays of light falling on the plates from below are diverted by total reflection, so that the cement joints remain invisible. Similarly, a large number of rays falling on the plates from without are no longer lost, but, in this system, penetrate into the interior of the space to be illuminated.

A novel and interesting feature at this stand is the Crystal-glazing, of which a most attractive example forms a domed light to the pavilion. The structure is composed of numbers of pieces of glass, both flat and in relief, and of all shapes, sizes, and colours, assembled and connected by means of copper bars and framing. The effect is extremely rich and mellow, and we understand that the system has been adopted in some of the most important buildings on the Continent. Any period or style can be followed; and the system is applicable to domes, skylights, barred and all other kinds of roofs, windows, etc. The design shown is a typical example.

Mack and King plaster and pumice slabs were noticed last week. The external walls of the large pavilion which has been erected as an extension to the Acton Isolation Hospital, are formed of this firm's 3-in. breeze concrete slabs, this construction having met with the entire approval of the Local Government Board. These 4-in breeze concrete slabs have also been recently used externally in a pathological block at the Miller Hospital, Greenwich; at the Boys' Home, Ashford,

and in many other important buildings. The Mack plaster fireproof roofs of course have been extensively in use for many years; and among innumerable examples of them, reference may be made to the Chelsea Town Hall; Messrs. Eastman's various premises, and a long list of telephone exchanges.

The basis of this firm's special system of preserving stonework consists of the reconstitution of natural stone, by using the maximum percentage of natural stone together with a binding material not affected by the free acids in the atmosphere and insoluble in water. The system is being extensively employed of many important buildings.

Address: 181, Queen Victoria Street, E.C. Telephone: Central 773; City 2218.

**Panels, Ltd. Row B, Stand 17.**

*Repoussé Copper Decorations.*

There can be no question that copper repoussé-work decorations have a singularly rich effect that is unattainable by any other form of decoration; and the panels of this description are peculiarly appropriate to certain situations. Until a few years ago, three difficulties prevented the extended use of copper-panel decorations—the first was cost of production; the second, the limited size to which the panels could be made; the third, the consequent restriction of the range of subjects. In the process employed by Messrs. Panels, Ltd., all these difficulties have been overcome. The firm's panels are not excessively costly; they can be made to the dimensions of 3 ft. by 4 ft.; and apparently any subject, no matter how delicate in detail, can be successfully treated. Landscape, seascape, figure subject, conventional ornamentation are all rendered with equal felicity in the examples shown at this stand; and a glance at them is sufficient to reveal their supreme fitness for the enduring adornment of yachts, passenger ships, theatres, public buildings, and, in short, for all situations in which while decoration is highly desirable, the liability to wear and tear rules out a frailier form. Independently of the question of durability, however, these pictorial panels have an inherent charm, that is sure to commend them as a unique and an effective form of artistic decoration.

Address: Duke Street, Birkenhead.



**Ravenhead Sanitary Pipe and Brick Co., Ltd.  
Row D, Stand 54.**

*Brickwork Building.*

A view is here given of this firm's stand, which has been designed by Messrs. Sir and Myer, A.R.I.B.A., of Holborn, C. The building shows the adaptability of brick to Classic architecture on two of its faces, and, upon the other, Tudor details have been introduced, the whole of the work being kept to brick sizes. The bricks are of a hard metallic nature, but, owing to treatment, the surface is considerably roughened, so as to give a rustic appearance. The whole has been set so as to make the joints somewhat prominent, and to form part of the architectural effect. Surrounding the bay and Tudor entrance random sneck walling has been introduced, the blocks being made out of similar clay to that used for the bricks. The tonings run from a grey buff to a dark purple, and are in many places flash-burnt. An interesting feature of the exhibit is the number of panels which have been afterwards modelled and cut into brick sizes and burnt. On the one end, the familiar Babylonian winged lion from the Temple of Nineveh has been reproduced. The same material has been used for the paving the inside of the building, part of which is shown random in character, and is very suitable for garden work and footpaths. Internally, the building is faced with light-coloured hand-made sand stocks, a special feature being made of the fireplace with its carved panel over, depicting offerings chained to a sacrificial altar. The woodwork is finished a silver grey. Messrs. Jones and Andrews, of Beckenham, were the general contractors, and the leaded lights were supplied by Messrs. Smith, Jones and Co., of Beckenham. The tiling, so made from the same material as the bricks, has a similar texture, and has been exhibited by Messrs. Roberts, Adlard and Co., of London.

Address: Ravenhead, St. Helens, Lancs.

**Medway's Safety Lift Co. Row D,  
Stand 56.**

*Electric and Hand Lifts.*

In a silent and smooth-running passenger lift shown at this stand under actual working conditions, two systems of control are exhibited: (1) by a switch fixed in a cage, and (2) by push-buttons in the cage and on all landings. The former system is applicable where an attendant is employed; the latter is automatic, absolute safety being secured by the patent controlling gear and gate-locks. All the bearings of these lifts are automatically lubricated, and an outer bearing is provided on the Vinding wheel shaft. Two interesting hand-power dinner lifts are shown, both effortless and easy in the working, and special attention may be drawn to a patent locking apparatus for the prevention of lift accidents.

Addresses: 62 and 63, Queen Street, S.E., and Rolt Street, Deptford. Telephone: New Cross 127.

**The Bath and Portland Stone Firms, Ltd.  
Row B, Stand 13,  
Building Stones.**

At this stand are shown full-sized reproductions of stonework for bay windows in comparison with similar work in wood and stucco; a bay window in Monks Park near with St. Aldhelm Box Ground edged walling, with stone tiles for the roof, exemplifying the superior durability of stone over rough-cast material. The comparison is intended to show that if the first cost of stonework is slightly more, yet, in the long run, when the ques-



STAND OF THE RAVENHEAD SANITARY PIPE AND BRICK CO.

tion of repairs is considered, the economy of using stone becomes established. Other examples in this firm's stone are from work in progress, and consist of a pediment window-head for a building in Kingsway for which Messrs. Treherne and Norman are architects, and a tracery window for the Bell Tower for Bushey Heath Church, of which Mr. G. H. Fellowes Prynne, F.R.I.B.A., is architect. They also show sections and samples of their various beds of Portland and Bath stone, and a piece of the original block of Portland stone as quarried for and marked by Sir Christopher Wren for the erection of St. Paul's Cathedral. The Bath and Portland Stone Firms, Ltd., are sole lessees of the Crown Lands at Portland, and are today quarrying stone from the same neighbourhood from which the stone was taken for St. Paul's Cathedral.

Addresses: Bath, London, Portland, Manchester, Belfast, Newcastle-on-Tyne, Montreal.

**The British Uralite Company (1908), Ltd.  
Row E, Stand 108.**

*Uralite and Asbestos Cement Sheets and Asbestone Tiles.*

For the lighter forms of building construction, it is specially necessary that the materials used shall be eminently fire-resisting. This condition is fulfilled by the specialities manufactured on so extensive a scale by the British Uralite Company (1908), Ltd., at their large works at Higham, near Rochester, in Kent. It was the existence of such materials as Uralite and Asbestone—light, durable, cheap, and fire-resisting—that prompted the recent Government inquiries into the possibility of employing more modern materials in the construction of schools and hospitals. Uralite and Asbestone, however, have been used in almost every variety of constructional work, the materials being readily adaptable to all

circumstances. For the quick and easy building of fire-resisting bungalows, sanatoria, cricket, golf or tennis pavilions, and similar structures, Uralite sheeting, with Asbestone roofing, offers admirable facilities, as the materials can be shaped and fixed with ordinary carpenters' tools. The lightness and unbreakability of the Asbestone tiles are an enormous advantage in shipping, or in conveyance over long distances inland, the weight per square being only 220 lb. The company's stand is a pavilion constructed of Uralite and Asbestone cement sheets, and roofed with Asbestone tiles. It is obvious that the Uralite sheets admit of many adaptations other than those that are more purely structural, such as partitions, linings for walls and ceilings, fireproof and cold-storage chests and cabinets, etc.

Special attention may be drawn to the Asbestone sheets which have a brick pattern impressed, and form part of the pavilion, built of Uralite and Asbestone, at Olympia, and specially designed to show the adaptability of the firm's manufactures for the construction of bungalows, cottages, etc.

Addresses: 85, Gresham Street, London, E.C. (Telephone: London Wall 3955); Branch, 30, Abington Street, Northampton; Works, Higham, Kent.

**Venesta, Ltd. Row A, Stand 3.**

*Panelling and Parquet Flooring.*

The main feature of this exhibit is the Venesta panelling and parquet flooring, of which many samples are on view. The stand is entirely constructed of panelling by Venesta, Ltd., and their parquet floor is laid, while their ceilings are also shown. Attention is also directed to the firm's art-panels, which are actual photographs reproduced on wood, and prove very effective, whether as panels in a scheme of wall panelling, or framed as pictures for wall decoration. The process



adopted in the manufacture of this firm's panelling and the squares for their parquet floors prevents shrinkage or cracking. Their Tudor oak panelling is an economical and effective means of decoration. Samples of the firm's theatre chair seats and counters are included among the exhibits, and also a Venesta screen with photographic panels. Embossed panels for friezes and other various uses are also shown.

*Address:* 1, Great Tower Street, London, E.C. *Telephone:* London Wall 4760.

**Marryat and Place. Row G, Stands 158, 159.**  
*Automatic Push-button Passenger Lifts.*

This firm are showing one of the automatic push-button passenger lifts of their latest construction with special features to provide absolute safety and maximum convenience. The chief features of the lift as enumerated by the manufacturers are:—Correct floor levelling without the use of noisy switches and contacts in the lift well. Two-speed attachments allowing the lift to be operated at a low speed for the convenience of invalids and nervous persons; self-closing gates (gravity), without springs or pneumatic contrivances, preventing inconvenience by the lift not working on account of gate being left open; automatic locks, which prevent gates being opened except when the car is opposite the landing; automatic contacts, which prevent the lift working if the gate is open; great simplicity, the working parts being reduced to a minimum. The lift itself is erected in the steel tower, measuring 30 ft. to the highest point of roof. The tower is provided with a gallery which enables visitors to the exhibition to get a bird's-eye view of the whole.

*Address:* 28, Hatton Garden, E.C.. *Telephone:* Holborn 6522. Works, Shepherd's Bush, W.

**United Stone Firms, Ltd. Row G, Stand 147; and Gallery, Bay 16a.**

*Building and Paving Stones.*

This firm are dividing their exhibits into two stands, the one on the ground floor (Row G, Stand 147) being devoted to examples of stone and granite for architectural, building, and engineering purposes, while in the gallery (16a, Bay) is a special exhibit of materials that are chiefly interesting to surveyors. In the former section the display is made up of actual examples of stonework for contracts secured by the firm and in course of completion. The portions of stonework exhibited will, after the exhibition, be incorporated in the various contracts mentioned.

Entrance to the exhibit is obtained at two points, each of which is flanked by Nailsworth and Blue Forest of Dean entrance gate piers for a new Baptist church at Ipswich. Along the front of the exhibit, adjacent to one main gangway, is a portion of the De Lank Cornish balustrading to be used in the Rochester Bridge over the Medway, while adjacent to the other gangway is seen the Portland stone to be used on the Kingston-on-Thames Bridge. The boundary adjacent to the cross gangway is marked by a fine specimen of carving in Bath stone, consisting of a triforium for the Church of the Annunciation, Old Quebec Street, London, W., while the pavement of the stand consists of Red Wilderness and Forest of Dean stone pavement for the Baptist church at Ipswich.

The examples of work shown within the enclosure are of considerable interest. Grey Forest of Dean stone is represented by a portion of the new entrance gateway and tower of the East India Dock for the Port of London Authority, while there is

also included in this portion of the exhibit a very fine specimen of polished Cornish granite.

A portion of the new station at Exeter for the Great Western Railway Company is shown, which is of special interest, inasmuch as Nailsworth stone is being used, while examples of Ham Hill stone and Red Wilderness stone are also in evidence.

Three other examples of work, which will especially appeal to those interested in building work at present proceeding in London, are: An example of Portland stone which is being used for the Furzedown Training College, Tooting, at present being erected for the London County Council; Blue Bristol Pennant stone staircases for the Gresham College, now being built for the City of London Corporation; and Blue Forest of Dean stone for the Church of the Annunciation.

In the gallery the United Stone Firms' surveyors' stand is laid out to represent, so far as the space available will permit, a portion of a street, and there are to be seen examples of the Porthgain granite macadam, together with Porthgain granite chippings of gauges specially screened. Attention may especially be directed to the Blue Bristol Pennant sawn paving, the tooled Keinton paving, and Keinton kerb and channel, the examples of Bristol Pennant and De Lank Cornish granite kerb and channel, and the Cornish granite setts.

*Addresses:* Head Office, 2, Bristol Chambers, Nicholas Street, Bristol; London Office, Crown Wharf, 69, Lots Road, Chelsea, S.W. *Telephones:* Western 1426; Brixton 2037; Bristol 3910; Portland 56; Plymouth 1416.

**Delta Metal Co., Ltd. Row H, Stand 174.**

*Extruded Metal, Constructional and Decorative.*

The business of the Delta Metal Co., Ltd., was established by the late Alexander Dick in the year 1883, and the company was incorporated in 1888. The firm are the original patentees of extruded metals, and show a very large assortment of their patent extruded rods and sections, including both solid and hollow shaped bars, in brass, yellow metal, manganese bronze, naval brass, copper, and various Delta metals. They have also, by the introduction of their patent extruded sections—bronze and brass shaped bars of an infinite variety of designs—enormously enlarged the scope and usefulness of bronze for constructional and architectural work. A great number of these sections are specially designed for architectural work, such as shop-fronts, window casements, sashes, mouldings, ornamental gates, railings, grilles, and numerous other purposes.

Their exhibit further consists of various heavy forgings and stampings (as well as rods, tubes, wire, and sheet) of Delta metal high-class alloys for engineering and general constructional purposes. The chief alloys are as follows: Delta metal No. I. alloy, a malleable bronze, having a tensile strength of about fifty tons per square inch, and about 20 per cent. elongation; Delta metal No. II. (silver bronze) alloy, an improved German silver; Delta metal No. IV. alloy, an acid-resisting malleable bronze as strong as steel, and having the highest resistance to corrosion.

A notable piece of workmanship at this exhibit are four heavy extruded bronze sections, bent to form an arch and supporting the signboard overhead. Under these arches is a showcase made from extruded Delta bronze sections, and surmounted by hand-forged ornaments in Delta metal No. IV.

There are also on show ingots in Delta metal Nos. I. and IV., and of Delta white antifriction metals, Babbitt's metal, etc.

*Addresses:* Delta Works, East Greenwich, S.E. *Telephone:* New Cross 180. And at Dartmouth Street, Birmingham.

**George Farmiloe and Sons, Ltd. Row J, Stand 212.**

*Painters' Requisites, Sanitary Goods, etc.*

Paints, general and special, including the Filocol substitute for whitewash; Blackfriars brands of white-lead and leadless paints, and Zingessol washable water paint; brushes for all painting purposes; plumbers' requisites of all kinds; every kind of glass, white and tinted, including fire-resisting wired glass; casements wrought-iron, steel, and Delta metal; all sanitary fittings, including baths, lavatories, sinks, closets, cocks, and other metalwork; these make up the varied and interesting collection at this stand. Of special interest at the moment are the cottage closets, lavatories, and bath which strike one as being particularly cheap, elegant, and efficient.

*Address:* 34, St. John Street, W. Smithfield. *Telephone:* City 3460.

**R. Gay and Co., Ltd. Row G, Stand 14.**  
*Paints, Enamels, etc.*

A model paint factory is an attractive feature of this stand, at which are shown samples of the firm's Impenetrable, Etruscan, and other paints, which, as the select list of decorating contracts show, have been used on several of the Royal palaces, in the Houses of Parliament, in most of the Government offices, at the London museums and art galleries, many great estates, and on a large number of hospitals, infirmaries, and on numerous other buildings of almost every description. Tegoline enamel is a pure and enduring white which does not change colour with age, and dries free from brush marks. It is supplied also in light decorative tints. Langthorne enamel presents a hard smooth surface, and is specially suitable for general interior work. The firm's Impenetrable paint is an acid-corrosive varnish paint which for more than half a century has proved its suitability for both interior and exterior work. Etruscan varnish paint is specially suitable for general exterior work. It is supplied on either a lead or a zinc base, all shades, and in glossy, eggshell, or flat finish. Other exhibits at this stand are: Impenetrable water paint, Presto white for distempering walls and ceilings, Presto paint and varnish remover, and several varieties of priming and undercoats.

*Address:* Stratford Market, London, *Telephone:* East 866.

**Bispham Hall Colliery Co. Row D, Stand 73.**

*Bricks, Tiles, and Terra-cotta.*

An attractive feature at this stand is the model of an elegant kiosk at Buer Ayres, constructed in Ivorine ware (mellow cream glazed terra-cotta), as to base, with the upper portion in white terra-cotta; the architects being Messrs. Chas. Heathcote and Sons, of Manchester. Ivorine is one of the specialities of the firm; others being Vitreous Grey, Vitreous Buff, and Pentelic ware. Samples of the firm's fire-bricks, fire-tiles, and block fire-proof flooring, and blue and buff bricks, are also shown.

*Addresses:* Orrell, near Wigan; London Office, Belgravia Chambers, 74, Victoria Street, S.W. *Telephone:* Victoria 3255.



**art and Son, Ltd. Row K, Stand 221.****Geyzers, Boilers, Ventilators, etc.**

Ewart's Lightning Geyser, of which several examples are shown, produces hot water for domestic purposes as well as for industrial. The Califont system provides an automatic hot-water service throughout a house, and by a patented system of automatic control the gas burns only while water is running, the cost of gas burnt to obtain a hot bath averaging  $\frac{3}{4}$ d. The Ewart geyser, with shower attached, produces a hot bath in a few minutes. The Ewart-Ready Boiler provides a quick service of boiling water for tea-making, with gas consumption. Ewart's Emperor No. 1, constructed on scientific principles, an approved means of curing smoky chimneys.

Ventilators, lightning conductor fittings, improved types and patterns, and an automatic gas copper are also shown.

Address: 346, 348, and 350, Euston Road, N.W. Telephone: North 2570-2.

**Reinforced Metal, Ltd. Row F, Stands 136 and 137.****A New Type of Reinforcement.**

In the Reinforced Metal method of reinforcement a single axially disposed steel member, either hollow or solid, or a standard rolled steel section, furnishes the longitudinal reinforcement, and also serves as anchorage for four steel spirals which are disposed eccentrically round it. These spirals, embracing the core, and on their outer side bearing hard against it, interfere with one another, and, pervading the concrete at every plane in the cross section of the column from the axial core to the edge of the protective coating of plain concrete, give lateral reinforcement at every point throughout the column, while, as claimed, they constitute shear-resisting members of most effective character, the steel and concrete everywhere acting and reacting on one another to the enhancement of the resistive power of each material to compressive stress. A full account of the system is given in an illustrated booklet which may be obtained at the stand, and this booklet contains also a report by Dr. Andrew Gray, F.R.S., Professor of Natural Philosophy in the University of Glasgow, in whose opinion the construction constitutes a very important practical invention."

Address: 175, West George Street, Glasgow.

**Enginers, Ltd. Gallery, Row B, Stand 30.****Petrol Gas Generators.**

Notable among the exhibits at this stand is a new ten-light model petrol gas generator, which embodies many important improvements. The machine is of such remarkable simplicity of design and construction that it could safely be left to the care of any unskilled workman, or even a housemaid; and one of its chief features is the easy accessibility to all parts of the machine, whether working parts or otherwise. Even this little ten-light model for cottages is not a toy but a well-made and thoroughly reliable machine, built of cast-iron and pure copper, as are all the other models. The machine is so compact that it occupies very little space and could be easily accommodated in any corner of a outhouse.

Many other appliances relating to petrol are shown, among them being a kerosene lamp, gas fire, and geyser. The firm, which can claim more than eight years' practical experience in the manufacture and application of petrol gas, have carried out many hundreds of installations in all

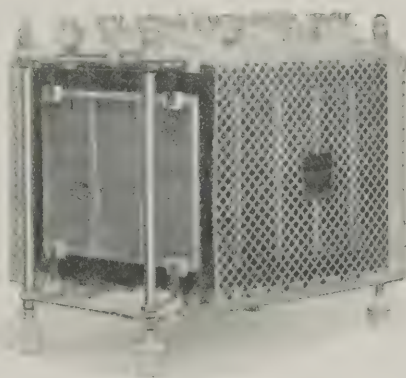
parts of the world; and architects will note with peculiar gratification that Messrs. Spensers make a speciality of artistic fittings, designed to harmonise with any period, and that they install their Ideal lighting without interference with existing decorations. The firm are on the War Office lists.

Addresses: 53, South Molton Street, W. (Telephone: Gerrard 9452); 119, George Street, Edinburgh (Central 1541); and 20, Henley Street, Stratford-on-Avon (No. 8).

**Ozonair, Ltd. Row H, Stand 176.****Ozonair System of Pure Air Ventilation.**

This stand demonstrates the Ozonair system of pure air ventilation, and comprises the following exhibits:

(1) Show case containing working model of the system, with washing screen, electrically driven fan, ozone generator, switchboard, etc. The Ozonair system has been installed in the Houses of Parliament in London, Ottawa, and Wellington; the Law Courts; Savoy, Piccadilly, and Imperial Hotels, London; Hotels Ritz and Meurice, Paris; His Majesty's Palace, and Palladium Theatres, London; the "Picture House," Glasgow; Leeds; Nottingham; and the Empire Cinema, Newcastle; the Central London Railway, besides numerous municipal and business buildings in Great Britain and on the Continent. The advantages claimed for the



AN "OZONAIR" OZONISER.

Ozonair system are that it provides scientific distribution without draughts, and that, by the addition of a small quantity of pure ozone, only about one-third of the usual amount of air is required, the air is rendered pure, tonic, and refreshing, and stuffy smells, cooking odours, tobacco smoke, etc., are removed.

(2) A range of ozone generators, transformers, switchboards, etc., as supplied for the above system, in various sizes. These apparatus are all manufactured by the company to special design, based on their extended experience in connection with the principles and requirements of the Ozonair system.

(3) A selection of Ozonair portable apparatus for air purification in various sizes and patterns. These machines are intended for use in places where the introduction of fresh air (ventilation) is not a *sine qua non*, as in living-rooms, offices, workshops, etc., which are not unduly crowded. They consume such a small current that they can be connected to any electric lighting circuit. The operating cost is therefore negligible.

The accompanying illustration shows one of the ozonisers. The ozoniser is made up of units, each consisting of two specially-designed electrodes, separated by a dielectric, and held in position by insulating clamps of non-conducting

material. The ozoniser consists essentially of metal and porcelain, and is entirely non-combustible. It can be made in any size or of any capacity. Each individual unit is connected by its two electrodes to a separate terminal on small bus-bars running along the whole length, so that the whole or any number of units may be in use at one time. Guards of strongly meshed wire protect the apparatus from injury or interference. The portable self-contained generators are suitable for public halls, large offices, schools, ships, etc. The powerful fan at the end of the machine may be used independently of the ozone. These generators may be enclosed in a neat cabinet of Adam or other design.

Address: 96, Victoria Street, Westminster. Telephone: Victoria 12.

**The Cloisonne Glass Co. Row B, Stands 7 and 8.**

Cloisonné glass, though admittedly lacking the mellowness of stained or leaded glass, is claimed to be superior to that material in respect that it combines the effects of both reflected and transmitted light. Owing to the absence of all perishable matter like lead, iron, etc., the material is very durable and is proof against dust, water, and draught. Being semi-opaque, it is evidently an excellent glazing material for partitions, fanlights, etc.; and the range of colours or tints (more than 2,000) which can be imparted to it allows of the treatment of delicate styles such as those of Sheraton, Adam, Louis Seize, and Empire, as well as landscape and portraiture.

Address: 40, Berners Street, Oxford Street, W. Telephone: Central 523.

**Scholey and Co., Ltd. Row D, Stand 60.****The Graham Electric Passenger Lift.**

A large working model shows the general arrangement and details of the Graham electric passenger lift, working on the push-button system, with the gear fixed below. Scholey and Co.'s gear embodies several special features, of which the main aims are quiet running, low current consumption, and perfect safety. One of this firm's latest type electric passenger lift gears is shown—the size suitable for raising a load of 6 cwt. at a speed of about 160 ft. to 180 ft. per minute.

Address: 151, Queen Victoria Street, E.C. Telephone: City 0484.

**John Line and Sons, Ltd. Row D, Stand 58.****Wallpapers, Paints, Enamels, and Fibrous Plaster.**

This stand has been specially designed for the display of Stuccolin fibrous plaster. In the colour department are examples of Duresco, for which this firm are sole district agents; of Triamel, their first-grade enamel; of Rubberose, for use on new walls before papering; and of Graphitum, an ironwork paint. A special feature is made of white-lead substitutes, in which this firm have specialised for many years, notably Permazin and Zinox. The latter is described as an entirely new zinc pigment, consisting of hydrated oxide of zinc, and as a thoroughly efficient substitute for white and red lead. It has an excellent glossy finish. Stuccolin is shown in many interesting applications besides those which form an integral part of the stand itself.

Addresses: 214, Tottenham Court Road, London W. (Gerrard 8800). Colour Department, 14, Alfred Place, London, W.C. (Gerrard 8803).



**Palmer's Travelling Cradle and Scaffold Co.**  
**Gallery, Bay 8.**

*Scaffolding Appliances.*

Of Palmer's travelling cradle it is almost superfluous to speak. It is omnipresent, so that "the man in the street" is familiar with its merits. It is large enough for two men to work in, travels along a wire rope, giving access to any part of the structure upon which it is proposed to work, and it can be raised, lowered, or moved horizontally by one of the men in the cradle, without extraneous assistance. The cradle weighs less than three-quarters of a hundredweight, and the wire head-rope would carry eight tons. The cradle can be fixed anywhere without interfering with the roof, and its use entails no obstruction of the pavement or floor. Palmer's steel wire scaffold lashing is being made at the stand, where also are shown many examples of ladders, steps, trestles, barrows, trucks and trollies, and particular attention may be drawn to Palmer's lever-lock extending ladder.

*Address:* Victoria Works, Belvedere Road, S.E. *Telephone:* Hop 1156.

**Burn Bros. Gallery, Row B, Stands 38 and 39.**

*Sanitation and Sewage Purification Apparatus.*

Noticeable among the large collection of drainage and similar apparatus at this stand are a self-regulating and self-cleaning automatic sprinkler, the Certus auto-flushing tank, and, among specialties that are minor as to size but not as to importance, the Whirl-spray sewage jet. There is a large and various display of cast-iron drain-pipes and fittings, soil and waste pipes, manhole covers and frames, and drain-testing and clearing appliances. An exceedingly useful appliance is Hector Macfarlane's patent Little Giant lift and force pump—an hydraulic pump which is guaranteed to remove the most obstinate obstructions from pipes leading from kitchen sinks, wash basins, and the like.

*Address:* Rotunda Works, 3, Blackfriars Road, S.E. *Telephone:* Hop 2903.

**The "J.M." Curtain Rod Co. Row B, Stand 166.**

*Patent Curtain Rods.*

Everything on, in, or about a house concerns the architect, who will not even draw the line at curtain rods. On the contrary, he will be glad to have it within his power to draw the attention of his clients to so convenient and comfortable a contrivance as the "J.M." curtain rod, which can be bent to any curve or angle, and is so contrived as to receive wheel-bearing runners which at the slightest touch carry the curtains along to any desired position. The rod requires no brackets, but is screwed direct on to its support. Another pattern, the Flexoid, is for use where casements and medium-weight curtains are required. The rods may be had in nickel-silver, oxidised silver, bronze, or copper finish. An accessory is the Oloopo heading tape, which saves the expense and trouble of hoops and rings.

*Address:* Campbell Yard, Leicester.

**The Spiral Bond Bar Co., Ltd. Gallery, Row B, Stand 30a.**

*Trisec Steel Reinforcement.*

Spiral Bond bars are produced by two mechanical processes. In the first, straight bars of special section are rolled; in the second, the bars are gently and gradually treated until they assume a spiral form, the fibres remaining continuous from end to end of the bar, so

that their effective resistance to stress is as great as if they were straight, the spiral arrangement being identical with that of the strands in a steel wire cable. It is further claimed that the spiral bars have a superior yield point, and that this increased strength permits the weight of the steel for any given work to be reduced by thirty-three and one-third per cent., and that the spiral bond obviates the necessity for crooking or fishtailing the ends of tension bars in beams and floors. Among further claims is one to the effect that in the case of compression members the high buckling resistance of the bars constitutes a valuable addition to the general factor of safety.

*Address:* Caxton House, Westminster. *Telephone:* Victoria 2434.

**Ripolin Ltd. Row H, Stand 172.**

*Paint Specialities*

On, within, and around their elegant domed and pillared pavilion, this firm demonstrate very conclusively the properties of their special paints. Ripolin, it is seen, dries with a hard porcelain surface, but at the same time retains a remarkable degree of elasticity, and therefore does not craze or crack. Examples are also shown of schoolboard composition, which is supplied in many shades, and as, being washable, it can be scribbled on with impunity, it is recommended for the walls of nurseries; a special hard-drying and durable quality of Ripolin for floors, stair-treads, and furniture; paste filler for undercoating and filling-up; Fletto zinc-white undercoating; Osorin finishing paint for interior and exterior use; Stop-sap, a clear lacquer which prevents sap and knots staining through light finished work; and gold and silver bronzes.

*Addresses:* 35, Minories; 310, Deansgate, Manchester. *Telephone:* Avenue 435.

**B. J. Hall and Co., Ltd. Gallery, Bay 14.**

*Drawing Office Equipment.*

All requisites for the equipment of the architect's or engineer's drawing offices are here shown; prominent among them being a selection of modern drawing office furniture, including the Pluperfect drawing table; standard double-elephant drawing cabinets; Hall's patent vertical electric copiers, which are self-contained pillar machines to deal with two tracings 42 in. by 30 in., the cylinder being fitted with the latest tightening gear; the firm's patent Drum continuous copier, for the production of blue, ferro-gallic, sepia, or other prints in any length without joint; the Catena adjustable drawing table, in which many improvements have been incorporated; a large collection of drawing instruments for all occasions; steel plan-cabinets and letter-files, and the Carbo-scope, a new instrument for the comparative measurement of smoke. To this last-named item we hope to give further attention in a future issue.

*Address:* Great Peter Street, Westminster. *Telephone:* Victoria 4780.

**Holophane, Ltd. Gallery, Row B, Stand 26a.**

*Prismatic Glassware for Illumination.*

Holophane globes are generally constructed with a series of horizontal prisms on their outer surface for re-directing the light rays, and a series of internal prisms which follow the law of cosines to give perfect diffusion and direction. No two of these prisms are alike, and each is accurate to one-thousandth of an inch. The outside prisms generally consist of four independent surfaces, the angles and inclinations of which are perfectly calculated to

give the predetermined distribution of light rays. A new form of Holophane globe has now been produced in which radial flutes are employed, giving to the globes all the sparkle and brilliancy of cut glass, with the advantage of scientific light diffusion and distribution; the light from them is at once strong and soft, glare and other causes of discomfort to the eye being entirely eliminated. The system is adapted to every conceivable requirement in buildings of all types, and for gas as well as electric lighting. Noticeable at the stand are the new Residence line of reflectors with interior surfaces treated by a special satin finish process, producing a restful and pleasing effect; the Uniflux reflector designed to give a uniform illumination over a plane surface, and hence very useful for the illumination of pictures and the like; and a new desk unit, consisting of a Stiletto reflector with a green opal covering shade suitable for gas or electric light.

*Address:* 12, Carteret Street, Queen Anne's Gate, S.W. *Telephone:* Victoria 2491 and 4094.

**Martin, Earle and Co., Ltd., Gallery, Bay 22.**

*Portland Cement.*

At this stand samples of the Rhinoceros and Ferroduric brands of Portland cement are shown in various stages of the scientific processes of manufacture, from the raw material to the finished article. The Rhinoceros brand is, of course, guaranteed to comply with all modern specifications, as is also the Ferroduric, which is a special brand manufactured to meet the special requirements of reinforced-concrete specifications. The works of the firm are situated on the north bank of the river Medway, and immediately adjacent an immense chalk pits, the company owning about forty acres of freehold land with all mining rights, and holding a lease on an additional sixty acres. They have further secured the rights to large deposits of clay in the Medway that is peculiarly suitable to the requirements of cement manufacture. The firm's wharf frontage is nearly half a mile long.

*Addresses:* London House, Crutcher Friars, E.C.; Wickham, Rochester, Kent. *Telephones:* Avenue 5420-1-2.

**W. H. Willcox and Co., Ltd. Gallery, Stand 27.**

*Pumps and Engineering Accessories.*

Willcox pumps for hand and power and for various services form the principal exhibits at this stand, a working model of one of them commanding general attention. The firm's Wing type pumps, with semi-rotary action, are now most widely adopted for nearly all purposes of lifting and forcing liquids by hand; their reciprocating or to-and-fro action being, it is claimed, far preferable to the old-style up-and-down motion of the plunger type of pump. In the quadruple-acting pump, an extraordinarily high capacity is ensured, as well as great power in forcing, and the extreme lightness of these pumps make them specially suitable for shipment abroad. They will lift vertically 25 ft. and will deliver up to a height of about 80 ft. A very handy manual fire-engine and irrigator is conspicuous among the many other interesting exhibits at this stand, which include the Penberthy automatic injectors and the Jones-Willcox patent wire-bound hose, which contains no rubber, and cannot kink or collapse.

*Addresses:* Offices, 23, Southwark Street, S.E.; Warehouses, 32-4-6-8, Southwark Street and Worcester Street, S.E. Hose Factory, Emerson Street, S.E. *Telephone:* Hop 3740-1.



**McKinson, Heywood and Clark, Ltd. Row F, Stand 121.**

*Varnishes, Enamels, Colours, and Paints*

One of the most tastefully decorated stands in the exhibition is that of Messrs. McKinson, Heywood and Clark, Ltd., which takes the form of an open pavilion, composed of a heavy base surmounted by eight massive pillars, which are crowned with an entablature bearing the name of the firm in gold letters. The firm's pure white enamel, glossy and flat, and their new speciality, Half Gloss White Finish—enamel paint with a dull sheen—are in great advantage in the painting of the pavilion; and a reception-room contains many attractive exhibits of decorators' varnishes, colours, and enamels. Two chairs are treated with Glazinola wood stain; and further examples of these stains in ground colours, which are all guaranteed permanent and fast to light, reveal the beautiful finish of which they are capable.

The handsome effects obtainable with various delicate tints of the Falconite Flat Enamel are demonstrated on the wall space at the back of the stand; while the remarkable covering capacity and density of the Kryptol non-poisonous white undercoat is proved by its use over black boards. Synoleo, a non-poisonous zinc paint ground in oil medium, but capable of being thinned with water without disintegration, is shown on plaster panels. Synoleo, while originally a water paint, is, when dry, as shapable as an oil paint, as the attendants of the stand prove to visitors by actual demonstration. A fountain erected in the centre of the pavilion has its water tank lined with Rosbonite, a preparation that is used in all the freshwater tanks in the ships of the Royal Navy; and Carvelin Enamel is submerged in the water in proof that it is entirely unaffected by that condition.

*Address:* Caledonian Wharf, Poplar, E. *Telephone:* East 1360.

**James Cullum and Co. Row K, Stand 224.**  
*Yellow Brick System of Construction.*

This firm's pavilion is constructed on the principle of the hollow brick system, with specially shaped perforated blocks, with wire or crossed reinforcement. The reason for this system, which has been extensively adopted, are—That the special shape of the blocks assures the greatest rapidity of construction; that structures constructed on this principle are one-half the weight of solid floors; there is neither expansion nor thrust; that the material is absolutely fire and sound-resisting. Floors on this system can be constructed over clear spans of 30 ft., and to carry any load. The firm are contractors to the Government, and are on the War Office list.

*Address:* 5, Aldgate, E.

**Dryad Works. Row H, Stand 162.**  
*Le Furniture and Architectural Metal-work.*

Let the first item in the headline descriptive of this exhibit should conjure up a vision of the bleached and glazed material with which, in particular, office chairs are made hideous, it is desirable to state that the Dryad cane is a totally different material. So far from being hideous, it is delightfully agreeable, in tone and texture as well as to the touch. For this furniture is made of unbleached pulp cane strengthened with ash, and is of a soft and pleasant neutral tint that could not come into violent conflict with any conceivable scheme of decoration or furnishing. The results into which the materials have been



OUR OWN STAND AT THE EXHIBITION.

woven are extraordinarily graceful; and, in particular, nothing could be more alluring than the various chairs shown, for they are as comfortable as they are comely. Their contours have been carefully designed to compose with the lines of the human figure. One feels this instinctively, and hence these chairs are restful merely to gaze upon.

Some fine architectural metal work—door furniture, electric light fittings, light standards, wall lamps, name-plates, etc., will be examined with real pleasure, because of their indubitably artistic design and excellent workmanship.

*Address:* 42, St. Nicholas Street, Leicester.

**John Jones (Chelsea), Ltd. Row 9, Stand 155.**

*Sanitary Fittings.*

At this stand there is a comprehensive display of excellent sanitary ironware and earthenware. Conspicuous are the Adapta cast-iron gullies glass-enamelled inside and coated with Angus Smith solution; a cast-iron inspection chamber with new and improved top covers fitted with non-detachable bridge screws and washer, to stand heavy air or water pressure; intercepting chambers; clearing rods and fittings; Lixall glazed stoneware drainage fittings, preventing leaky manholes, dispensing with cement bendings, and giving easy access to all parts of the drain; and the Eureka air-inlet with louver blades.

*Address:* Carlyle Works, Chelsea, *Telephone:* Kensington 4765.

**Chubb and Son's Lock and Safe Co., Ltd. Row H, Stand 170.**

*Fire-resisting Safes, Doors, and Cupboards.*

The most prominent exhibit at this stand is a range of patent reinforced concrete fire-resisting cupboards with six pairs of folding doors, which seem to be most admirably adapted to their purpose of fire-resistance, and are at the same time a striking testimony to the wonderful

adaptability of reinforced concrete. The firm's new patent reinforced-concrete fire-resisting party wall doors, hinged and sliding, afford further evidence to the same effect. Safes for all services, and embracing the latest improvements, are also on exhibition, as well as a section of a strong room wall, samples of steel shelving, and a case containing household locks and new patent springless locks.

*Address:* 128, Queen Victoria Street, E.C. *Telephone:* City 377, 1626.

**Davis, Bennett and Co. Row C, Stand 42.**

*Sanitary Fixtures, etc.*

This firm have a fine exhibit of up-to-date model bathrooms, showing the latest development of sanitary appliances. As illustrating the wide range of their work, it may be mentioned that special patterns have been made for 200 bathrooms at the Adelphi Hotel, Liverpool, for 100 bathrooms at the Hotel Cecil, for bathrooms for the Gordon Hotels (Grand, Victoria, etc.), the Carlton Hotel, and many other big establishments. The walls of the various bathrooms are lined with marble, tile, and mosaic decorations, and with egg-shell glazed tiles with friezes designed by Mr. R. Frank Atkinson, F.R.I.B.A. Special baths are shown fitted with aprons carried back to the wall, so that there is no space for dust or dirt to collect. Messrs. Davis, Bennett and Co.'s baths are fitted with special wastes and valves which fill and empty them in forty-five seconds. The floors are covered with jointless flooring, specially made with iron webbing with suitable borders. There is also a fine show of lead wrought rainwater heads. An interesting exhibit is a law-pattern closet, which flushes efficiently with an 18-in. head of water and is silent in action. Vitreous fireclay lavatories and earthenware lavatories, all specially designed without any quirks for dirt to collect in, are also exhibited together with toilet fittings. The firm show a large exhibit of porcelain enamelled iron



baths of special patterns. Many of their fittings are novel and shown for the first time. Their improved pattern "Premier" syphonic closet, with a water area 13 in. by 9 in. by 6 in. deep, is quite silent in action, and forms an exhibit of considerable interest.

Address: 94a, Horseferry Road, Westminster. Telephone: Victoria, 707, 1212.

**Empire Stone Co., Ltd. Gallery, Row B, Stand 21.**

*Artificial Building and Paving Stones.*

Artificial stone has several advantages over natural stone, being more homogeneous, and therefore immune from the flaking and other injuries to which natural stone is liable when exposed to atmospheric influences. The texture and tone of the examples shown at this stand are excellent. Samples of architectural dressings include balustrading, a sun-dial, a garden seat, a drinking fountain, moulded spandril, and garden steps. Paving slabs, grey and red, as supplied to the principal corporations, are also on view, as well as samples of Empire ferro-concrete.

Address: Thanet House, Strand, W.C. Telephone: Gerrard 8152.

**U.K. Winget Concrete Machine Co., Ltd. Row J, Stand 193, and Row H, Stand 184a.**

*Concrete Machinery and Accessories and Wood Trimmer.*

At Stand 193, Row J, this firm's Express concrete mixer—a rotary mill—is seen in operation, its extraordinary efficiency being fully demonstrated. Other machines which are constantly being watched by interested groups of spectators are the machines making, respectively, 4½-in. hollow slabs, partition slabs 9 in. high and 12 in. high, and the Titan block-making machine. The Winget machines, which are in use in all parts of the world, and are employed by the Government departments, as well as by the Crown Agents for the Colonies, give a large selection of face-plate designs, and will make double-faced blocks for boundary wall work.

At Stand 184a, Row H, is shown the Lumsden wood-trimmer, a hand-operated machine having constant draw-cut motion, vertical rising fence, instant adjustment to any position on its column, and extremely adaptable length gauges.

Addresses: Star Buildings, Newcastle-on-Tyne; 5, East India Avenue, E.C. Telephone: Central 2631.

**Coup, Phillips and Co. Row J, Stand 192.**

*Casement Stays, Bolts, and Fanlight Openers.*

This firm's Uneeda patent self-adjusting casement stay is devised on the piston, or telescopic, system, and its adjustment is effected simply by opening the window, which is held in any desired position by the friction of the expanding piston. It is applicable to casements which open either inwards or outwards, is made of the best drawn brass, and is highly finished. The Uneeda steel stay is on the Simplex hinge friction system. The casement can be closed and locked simply by pulling the hinge-end of the stay into the room. The Uneeda patent self-locking bolt is, as its name implies, a lock as well as a bolt, for by lifting the knob a plunger is withdrawn from a hole in the back plate, and the shoot may be pushed home, when the plunger again falls into a hole provided and becomes locked. In the automatic bolt the slight pressure on the knob necessary to move the shoot automatically disengages the locking-plunger. There is a

middle locking position, which, together with a tapered shoot, provides for a door that has warped or twisted being securely and quite easily bolted. Special bolts are supplied for large doors. At this stand are shown also the Linolite Company's (of 25, Victoria Street, Westminster, whose own stand is No. 191, Row J) Woodhouse steel bendable casing for electric wiring installations.

Address: 13, Clerkenwell Road, E.C.

**W. R. Pickup and Co., Ltd. Gallery, Row B, Stands 16 and 17.**

*Sanitary Ware.*

Enamelled fireclay sanitary ware, manufactured by this firm at their Horwich works, includes samples of sinks, lavatories, closets, and, in fact, every requisite sanitary fitting for public buildings, baths, conveniences, hospitals, hotels, theatres, etc. The ware is of most attractive appearance, and the patterns are as pleasing as the texture of the materials.

Address: Brook Works, Horwich, Lancs.

**Major and Co., Ltd. Row F, Stand 111.**

*Solignum Wood Preservative.*

Solignum has been applied on the wood-work of this pavilion in proof of the excellent decorative effects that can be obtained with this material, which, however, is primarily a preservative coating, affording protection against all the destructive agencies by which wood is liable to be attacked, including the dreaded white ant. The firm draw special attention to the value of their specialty as a stain for oak, for which purpose it is stated to be superior to fumigating. It produces immediately the effect of genuine old oak.

Address: Sculcoates, Hull.

**Aspinall's Enamel, Ltd. Row E, Stand 88a.**

*Enamel Paints.*

The whole of the work on this stand, both in enamelling and distempering, has been done during the time allotted to exhibitors for putting up their various exhibits. This should appeal to practical users, as it clearly shows what the firm's products will do under the most exacting conditions, as, naturally, owing to the more or less adverse conditions incidental to the erection of the large number of buildings at the exhibition, the painters have not had the advantages for turning out good work that they would have in a properly protected dust-proof paint shop. Architects especially will appreciate this point, and will note with as much pleasure as surprise that the work has nevertheless comes out splendidly.

The exhibit is intended to show the effects obtained by Sanalene, an elastic enamel paint of the highest quality, carefully prepared from the finest materials. This paint is supplied in gloss, eggshell, or flat finish, and is readily washable.

A second grade of enamel is also shown under the title of "Special Enamel," which the firm recommend as a durable and reliable paint for all work.

The other materials submitted for inspection are Sanitary paint, an all-round varnish paint for inside or outside work; Wapicti, a really washable distemper; Bath enamel, specially made for resisting hot water; and Radiator paint.

Address: New Cross, S.E. Telephone: New Cross 42.

**The Patent Rapid Scaffold Tie Co., Ltd. Row D, Stand 67.**

*Scaffixer Scaffold Lashings.*

At this stand there is a very practical exhibition, with demonstrations at frequent intervals, of the uses and advantages of

the Scaffixer scaffold lashings. The ties are guaranteed British-made steel forgings, both the blocks and chains being galvanised by an improved process, which gives them perfect immunity from all possibility of rusting. They are in use by eminent contractors on many important buildings, a number of which are illustrated in a booklet which is being distributed at the stand. By the use of these ties in reinforced-concrete work all loss of time in cutting props to uniform lengths is avoided, no counter-wedges are required, and striking the centering becomes simple, safe, and speedy operation. The ties are, of course, applicable to all methods of building.

Address: 124, Victoria Street, Westminster; and in the provinces and abroad Telephone: Victoria 6030.

**Gross, Sherwood and Heald. Row G, Stand 146.**

*Decorative Enamels and Paints.*

This pavilion is handsomely designed in Georgian style, and is painted throughout with the firm's Rystolite enamel, which have been used in the Royal palace in the Houses of Parliament, and in many other important buildings. Besides various oil paints, such as the Astriur, the firm show also examples of the use of their Zopessa washable distemper, the silicate solution for the prevention of dampness in walls and for preserving stone and stucco.

Address: Barking, E. Telephone: East Ham 132.

**Garratt's Patent Screw-down Valve Co. Row B, Stand 18.**

*Patent Taps.*

Garratt's patent Ideal screw-down bi and pillar valves, which are shown in action at this stand, are by this time well known to need detailed description. The piston in this tap has a striking action, and consequently there is no torsion or shearing effect when the seating closes; and the screw, working out of contact with the water, is unaffected by the hardness or grittiness which are so destructive of ordinary taps. The Ideal is largely adopted by H.M. Office Works and the War Office, and in the Sutton Trust and other dwellings.

Address: 11, Queen Victoria Street, E.C.

**SIRAPITE PLASTER.**

Sirapite, we are informed by one of the neat booklets issued by the Gypsum Mine Ltd., of Mountfield, Robertsbridge, Sussex, and Kingston-on-Soar, near Derby, "can of age" last year, when the total sales had exceeded 300,000 tons, the current output being something like 2,600 tons a month. Sirapite possesses in a far higher degree than lime plaster the qualities of rapid setting and drying, and a hardness that give it a peculiar value, especially for hospitals and institution work. Other advantages are that it is laid on in two coats instead of three, that it does not blister, blow, or crack, and that it can be easily brought to a polished surface. It can be used satisfactorily with sawn laths, and adheres readily to Flett bricks. The work can be most expensively carried out, and the cost is no more than that of good three-coat common lime and hair plastering. The firm are distributing a leaflet showing an interesting bird's eye view of the Sutton Trust Model Dwellings in the City Road (Mr. E. C. Monson, F.R.I.B.A., architect), where the 885 rooms were plastered and finished with Sirapite.



# THE ARCHITECTS' & BUILDERS' JOURNAL.

Wednesday, April 30, 1913.

Volume XXXVII. No. 955.

No. 31.



*(From Piranesi.)*



INSTITUTION OF ELECTRICAL ENGINEERS, VICTORIA EMBANKMENT, LONDON: CORNER OF LECTURE HALL.  
H. PERCY ADAMS AND CHARLES HOLDEN, ARCHITECTS.

(See page 46.)



# THE ARCHITECTS' & BUILDERS' JOURNAL.

APRIL 30 1913.

CAXTON HOUSE, WESTMINSTER.

VOLUME 37. No. 955.

## The Classic Spirit.

ENGLISH architects are to-day, with a few notable exceptions, engaged in designing buildings in some variation of what may be called the classical manner. That is to say, there is a general consensus of opinion that it is only by the use of classical forms that the requisite character can be given to a modern building. This being so, one is at once tempted to ask how it is that under the favourable conditions for the formation of a distinctive style which a general consensus of opinion gives, no such style has come into existence. That it has not, one must admit, is a serious criticism on our civilisation. It would be difficult to find a period in history where a powerful nation had for nearly 100 years created a vast number of buildings which showed so little consistency and character that the term style could not properly be applied. For no one would grant the dignity of a distinctive style of architecture to the medley of ill-assorted commonplace classical detail we have been accustomed to refer to under the title "free classic." And yet, looking back on the work since the Gothic revival days, one must with sorrow admit that the term "free classic" embraces a very large proportion of the buildings erected.

The truth appears to be that these "free classic" buildings have nothing really classic about them. They do not conform to any spiritual standard. They are not classic in the sense that a fine piece of Gothic architecture is. They exhibit none of the reserve which is essential to the classic spirit in any art. They stand for individual achievement—advertisement rather than sublimity of idea. In any true manifestation of the classic spirit like St. George's Hall or the Pennsylvania Railway Station, New York, individual idiosyncrasy of expression is reduced to a minimum. The high distinction in such buildings is the high distinction of good breeding, a consistency of character, which gives them kinship with the great classic buildings of antiquity. These "free classic buildings" which we have been accustomed to in England are really but half caste. Their bones belong to the Gothic Revival, their complexion to the classical detail popular at the moment. The supposed requirements of their owners have been accepted in their crudest form. A classical building implies at the outset the resolution of such requirements into some sort of unity, so that the resulting building may be of simple form. It is thus possible to express the spiritual meaning of this unity in the architecture.

The primitive idea of architecture which is so persistently advocated by Mr. March Phillips and the survivors of the arts and crafts movement, by which it is maintained that the composition and form of a building is to be entirely determined by the requirements of each apartment, irrespective of general considerations of style and character—a bay window is to be thrown out of a particular room to catch the sun at 4.30 p.m.—is really a low materialistic conception of our art. It is a conception which may bring into existence excellent

cowsheds, but not the finest type of habitation for a civilised being. The things which by their naïveté and frankness gave pleasure in a primitive Gothic building become affectations and absurdities in a more formal style.

One may think it a very unlikely place to find such a thing, but in his introduction to the catalogue of the recent Post-impressionist Exhibition, Mr. Roger Fry gives an excellent definition of the classic spirit. "All art," he says, "depends upon cutting off the practical responses to sensations of ordinary life, thereby setting free a pure and, as it were, disembodied functioning of the spirit; but in so far as the artist relies on the associated ideas of the objects which he represents, his work is not completely free and pure, since romantic associations imply at least an imagined practical activity. The disadvantage of such an art of associated ideas is that its effect really depends on what we bring with us; it adds no entirely new factor to our experience. Consequently, when the first shock of wonder and delight is exhausted the work produces an ever-lessening reaction. Classic art, on the other hand, records a positive and disinterestedly passionate state of mind. It communicates a new and otherwise unattainable experience. Its effect, therefore, is likely to increase with familiarity." We can apply all this to architecture. The highest type of classical building must be a work of passionate disinterestedness; it must be the disembodied functioning of the spirit. The artist must be willing to sink his idiosyncrasies in order to reach the purest form. Architecture as practised to-day is, as far as the public is concerned, a practically anonymous art. The classical architect has still further demands made on his disinterestedness. No competitive trick of detail, no fashionable sign manual, or peculiarity of material by which clients and the public can always recognise work can be his. Academies will not elect him. He will probably be unknown to his generation. But his work, if it reach the standard of pure classic excellence, will belong to all countries and to all time. In the vast office of Messrs. McKim, Mead, and White, we do not know who it was who drew and detailed the great waiting-hall of the Pennsylvania Station. Except to a few intimates it will probably be never known. Yet draughtsmen who modelled this hall brought into existence a structure which will live with the greatest architecture of every age. Whether it was the work of one man or a dozen is of little importance. The passionate disinterestedness, the deep feeling, and wide scholarship which made such work possible were present and proved thereby that American civilisation in one at least of its aspects could reach a height of achievement Europe has not touched since the Renaissance in Italy.

We in England have too much to learn to pass unrecognised the great work which is embodied in this New York terminal building. It is a mighty example of modern skill, and it points the way where all great architecture lies.

C. H. R.



#### The Ancient Monuments Bill.

THE Ancient Monuments Consolidation and Amendment Bill was introduced in the House of Lords last week by Earl Beauchamp, First Commissioner of Works, and read a second time. So far, therefore, as the Upper House is concerned, it is well on the way towards the Statute Book; but it has to undergo very much the same process in the Commons as in the Lords, and there is no saying that it may not yet become a contentious measure. Much of the reason for this latter result, however, is removed by the exclusion of ecclesiastical monuments from the scope of the Bill, the First Commissioner's present intention being to confer with the ecclesiastical authorities with a view to the introduction of an agreed Bill on the subject next session. For our own part, we should like to see churches and cathedrals brought within the scope of the Bill, for, after all, as architectural relics the great fanes and parish churches are a national possession. There is a danger under any guardianship, but we cannot see that if the great buildings were under the care of the State they would suffer worse than at the hands of Deans and Chapters. As we have already pointed out, the restoration zeal of the latter during the nineteenth century does not inspire us with the faultlessness of the guardianship.

This point was well emphasised by Earl Curzon in the debate on the second reading. He drew a clear distinction between churches and cathedrals, for the reason that churches were under the protection of a faculty, though that protection was little more than nominal. Indeed, he had had experience of cases in which the faculty had altogether failed to protect churches. The cathedrals, however, had not even the protection of a faculty, but were the absolute property for the time being of the Dean and Chapter. While not wishing to imply that Deans and Chapters were not scrupulous in the exercises of their trust, there were as great differences between architects as between theologians, and Lord Curzon said—and we agree with him—that he would like nothing better than to see the cathedrals put in the schedule of monuments which could not be touched except with the consent of the State, represented by the Ancient Monuments Board.

#### Tendering for Bills of Quantities.

THE following circular has recently been issued to the leading public authorities:—"The Council of the Quantity Surveyors' Association has repeatedly had its attention called to the growing and objectionable practice of public authorities advertising for tenders from surveyors for the preparation of bills of quantities. The Association has therefore recently adopted a by-law under which any member tendering for or undertaking public work below the scale issued by the Association in 1906 will be considered guilty of conduct prejudicially affecting the reputation of the Association. The Council thinks the time has arrived to check a practice so directly opposed to the production of responsible and accurate work, a practice unknown in any other profession, and totally inconsistent with the policy of those authorities who insist upon all workmen being paid the standard rate of wages. The Council is at all times prepared and willing to confer with any public authority and to advise them as to a reasonable fee to be paid for the preparation of bills of quantities, and it hopes this course may be the means of protecting public authorities from the consequences which frequently result from the employment of unqualified men who undertake work at a low rate of remuneration." To advocate the complete abolition of tendering of all kinds—even that form of it which is the recognised practice among builders and contractors, would be to express a merely Utopian aspiration. Nevertheless, the principle has in it something which has always appeared to us to be inherently vicious, as tending towards a cheapening of everything

to danger point. At all events, we have no hesitation in giving our hearty support to this protest against the importation of the system into professional practice. General adoption of such a pernicious principle could only result in degradation and impoverishment of the profession, with consequences to its work that would be equally undesirable. We trust that the Quantity Surveyors' Association will maintain a vigorous and incessant campaign against it.

#### The Problem of Our Shops.

THERE are many signs that the sharp controversy over the Regent Street Quadrant scheme may have, ultimately, a much more salutary effect than that of setting the architect and the shop-keeper at loggerheads. There is no real reason for the antagonism; for it can never have been seriously doubted that, as Mr. H. V. Lanchester put it in his paper read before the Royal Society of Arts last Wednesday, the resources of architecture are equal to the solution of the problem of the shop. Neglect of these resources Mr. Lanchester attributes to two causes, the chief of these being the general apathy towards the arts, which gives rise to a sort of reflex inaction ("mental indolence," the lecturer called it) on the part of the architect, who is excused on the ground "that he sees but little encouragement to devote himself to perfecting himself in his art when those who employ him display so little appreciation of the difference between good and bad architecture." The excuse is hardly sufficient. If the commercial demand for effective shop-fronts has been more sagaciously interpreted by the shop-fitter than by the architect, surely the latter is to blame, because, instead of fairly grappling with the problem, he has either arrived at an unacceptable solution, simplified and falsified by the evasion of vital factors, or he has been weak enough to shirk it altogether, by handing over the bulk of the business to the professional shop-fitter who, for his part, as we have been repeatedly assured, would be very glad indeed of architectural aid if it were more commonly available and more palpably practical. There is no need to fly to the extremes—the architectural and the commercial—assumed in the Quadrant controversy; for, as Mr. Lanchester did not fail to note, there is certainly observable among commercial men a growing appreciation of architectural value in the display of goods in a window. It is being realised by the shop-keeper that the all-glass theory is a mistake not only from the architectural but from the business point of view; and the architect, for his part, is realising that here is a case for applied rather than for pure architecture: and so we are within sight of a *modus vivendi*, from which the architectural shop-front must soon emerge.

#### Building Accidents.

INCREASED building activity brings with it inevitably an augmentation of the risks that attend what is an essentially dangerous business. A particularly distressing accident which occurred last week in Holborn, where a crane that was in use for the lifting of iron girders suddenly collapsed, killing the signalman and severely injuring two other workmen, is only one further illustration of a too familiar experience. Such catastrophes, however, in spite of the increased volume of work, and notwithstanding the introduction of comparatively or absolutely novel methods of construction, to say nothing of the greater speed of execution which is expected nowadays, are proportionally much less frequent, and much less serious in character, than they were a generation ago. That, of course, is no reason why precaution should be relaxed, but is rather an incentive to increased care, vigilance, and ingenuity. We may never attain to the goal of complete and assured immunity against accidents, but it is nevertheless an imperative duty to press onwards towards it with all diligence.



THE SMALL SUBURBAN HOUSE COMPETITION.

WE are able this week to publish the awards in our competition for plans and section of a suburban house better suited to the needs of a small middle-class family than the type of house which is commonly provided. The competition arose out of some remarks by "Ubique" in a former issue of this journal, and the widespread interest in the subject is manifest from the astonishing number of schemes which have been sent in. Altogether, these totalled no fewer than 467; and it is worth mention that the bulk of the designs were received on the last two days.

With so large a number of schemes to consider, it is obvious that the adjudication of them has been a matter of great labour and difficulty, the latter being increased by the fact that no single scheme is free from imperfections while at the same time presenting a real idea for the improvement of the type of house dealt with. Many of the designs submitted were discarded chiefly on the latter ground, as they represented merely a slight reshuffling of the component parts of the customary speculative builder's plan. Others possessed obvious faults, such as over-complex planning (fatal in view of the avowed object of the competition), rooms allotted only from the space between the pairs, entrance doors opening against the foot of stairs, over-indulgence in "nooks," a lack of relative scale between the living-rooms and domestic offices, and—most common of all—a cycle store into which no orthodox cycle (or trambulator) could be persuaded whole.

In the end the prizewinners were chosen as follows: First prize (£5 5s.), Mr. Frank S. Swash, A.R.I.B.A., Landrindod Wells.

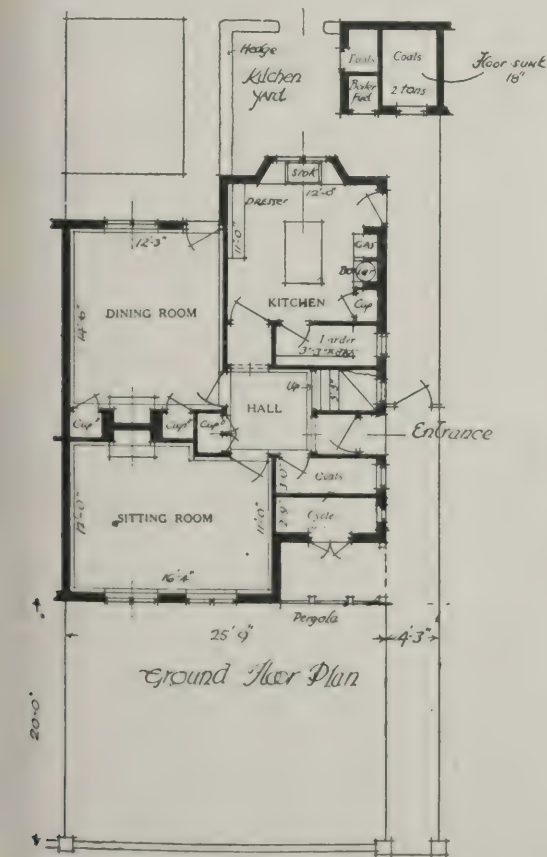
Second prize (£3 3s.), Mr. Wm. W. Scaife, Whitley Bay, Northumberland.

Third prize (£2 2s.), Mr. Leslie Wilkinson, A.R.I.B.A., London.

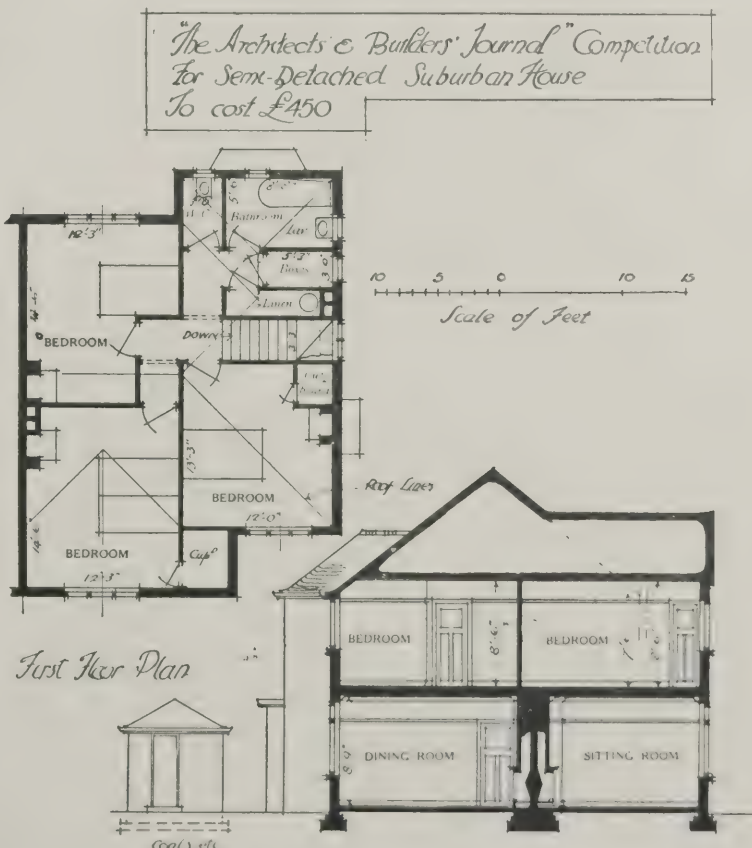
The prize designs are published in this issue, together with four others which offer points of interest. The first-premiated design, by Mr. Swash, owes its position to the excellent general grasp which the author

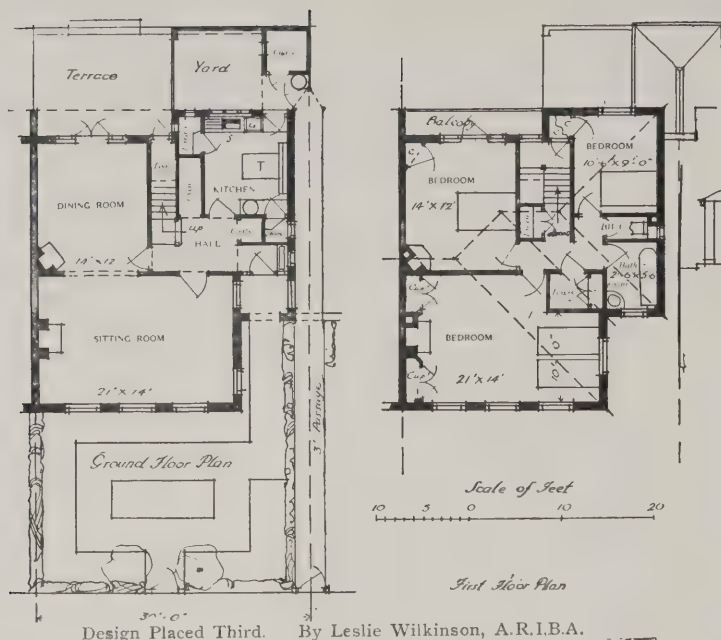
shows of the purpose of the competition. The ground-floor arrangement is very well thought out, there being a pleasant little entrance-hall, well lighted from the staircase window, a good-sized sitting-room and dining-room, and a kitchen which, in the disposition of its parts, would make for comfort and convenience in use; while upstairs the bedrooms are roomy and well lighted, and the bathroom, boxroom, etc., are admirably disposed. The placing of the cycle store at the front of the house in such a position that a pergola is necessary to screen it, and so prevent its appearing to be the front entrance, is a detail open to question, though we admit that the cycle could thus be taken in and out without bringing dirt and dust into the house itself; but, everything considered, it would have been an improvement to unite this space with the "coats," thus providing the room which is so good a feature of No. 6 (see page 461). Another defect in the plan is the mean nature of the main entrance. This, with advantage, might be splayed (as in No. 7, reproduced on page 461), or covered by an external porch connecting across to the adjoining house (as in the second-premiated design, reproduced on the next page). Other points open to criticism are the rather poor lighting of the dining-room, and the somewhat unhappy disposition of the bed in the room over. These are defects, however, which could be corrected with little difficulty. The stairs are admirably spacious, though they would be improved by the projection of two treads into the hall, where they would not be in the way of traffic, and would permit the abolition of awkward winders at the half-landing space. Apart from these points, the plan seems to us to be an excellent one.

The design placed second, by Mr. Scaife, narrowly escaped first place, for it has much to commend it. It is well arranged and exceedingly well worked out in detail. Much thought has evidently been expended on the shape of the various rooms, which are all well treated. The plan abounds with ideas—some of them rather over-ingenuous in the circumstances, e.g., the



Design Placed First. By Frank S. Swash, A.R.I.B.A.





Design Placed Third. By Leslie Wilkinson, A.R.I.B.A.

serving-hatch. The defects which occur are of a minor character, the most serious being the absence of a way out to the garden other than across the yard, and the badly-lighted position of the gas-cooker (easily remedied). This is a highly economical design, promising good interior effects, and the elevations also have evidently been well considered. The position of the w.c. has something to recommend it where only one is provided.

The design placed third, by Mr. Leslie Wilkinson, exhibits much originality in treatment, but requires further working out and more space—though in view of the fact that the site is already strained to the utmost, we cannot see how the latter is to be provided. The splendid large rooms at the front, on ground and first floors, are of course the outstanding features, but in providing them other things have had to suffer. A prominent defect is the cramped planning of the entrance and staircase. The hall is likely to be very poorly lighted, and it would surely be a matter of considerable difficulty to get furniture up a staircase of a width of only 5 ft. 4 in. the double flight. The front bedroom is certainly over-lighted, the window behind the beds being both superfluous and objectionable. But, apart from this, the bedroom floor is particularly good. Other good points in this scheme are the excel-

lently-shaped rooms, the position of the entrance, the sheltered terrace outside the dining-room, and the simple roofing on modern lines.

No. 4, by Mr. Alex. Pease, A.R.I.B.A. (see opposite page), shows a type of plan not commonly adopted, but possessing some attractive features, such as the loggia (which works in very naturally), and the ingenious disposition of kitchen and offices.

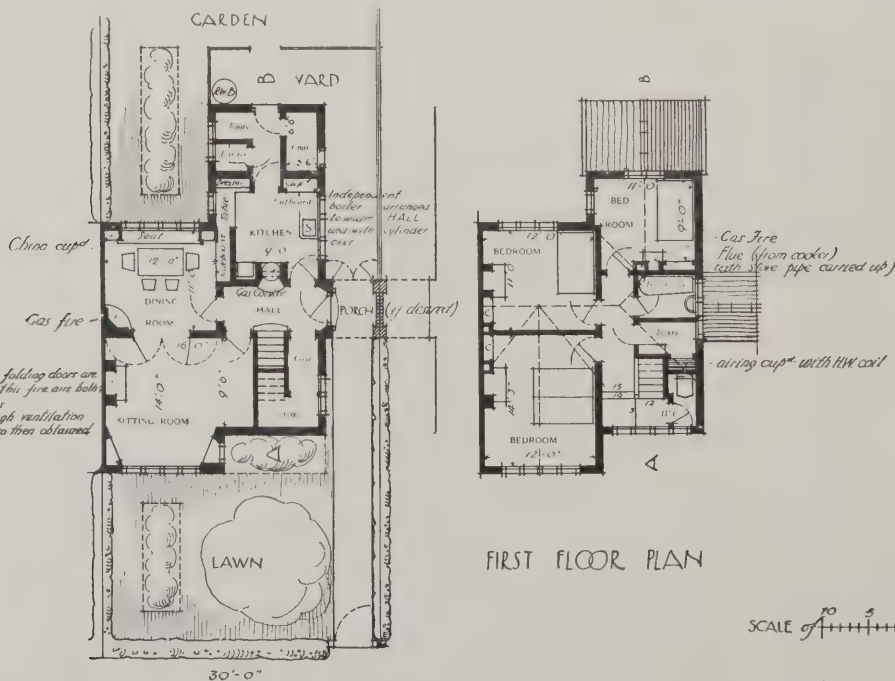
Design No. 5, by Mr. D. A. Adam (see opposite page), is on rather ordinary lines, but is well arranged. It belongs to a type which was adopted by many competitors.

Design No. 6, by Mr. F. J. Barnish, is reproduced for its several good points, though it transgresses the conditions in arrangement of boxroom and linen store, and the access to kitchen solely from the dining-room is unwise. The room for coats, etc., is, however, an excellent feature, and the first floor is well planned. The kitchen would be but poorly lighted.

Design No. 7, by Mr. B. Wakefield, Licentiate R.I.B.A., would have taken a higher place but for the very awkward placing of the boiler and gas stove. This design in its radical points is very similar to the one placed first.

From the foregoing it will be seen that all the plans reproduced have their good points, and that all, too, are open to criticism; but, taken altogether, we think they are of great interest, and if, as we hope, they prove instrumental in abolishing the passage type of plan usually provided by the speculating builder and the estate development company, the competition will have served a very useful purpose. The interest evinced in the competition has, indeed, prompted us to decide on another competition, for elevations from the prize plans. Full particulars of this will be published shortly.

Next week we shall give a further selection from the designs sent in, with accompanying notes.



FIRST FLOOR PLAN

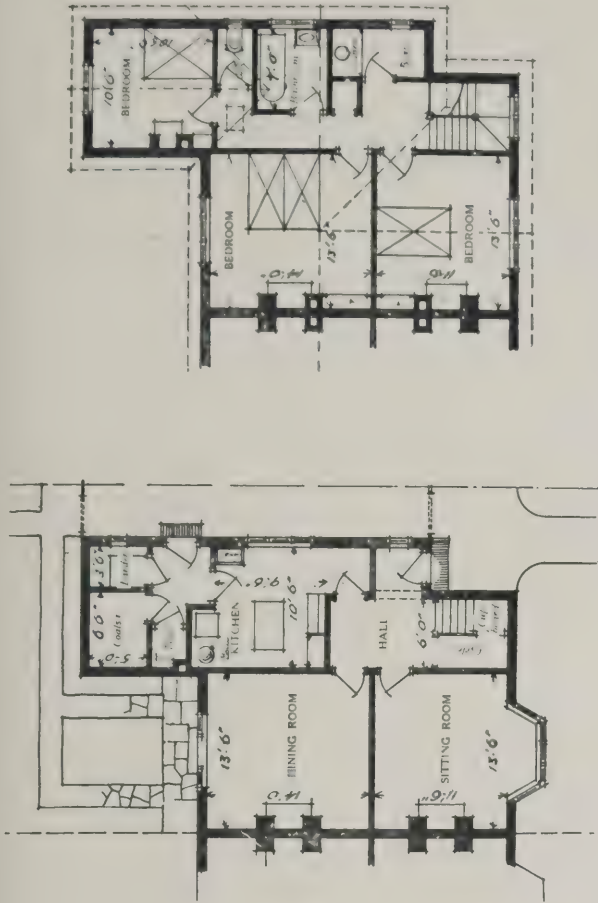
SECTION on A.B

6,800 CUB FT @ 6°	£420
PORCH	5
TOTAL	£425

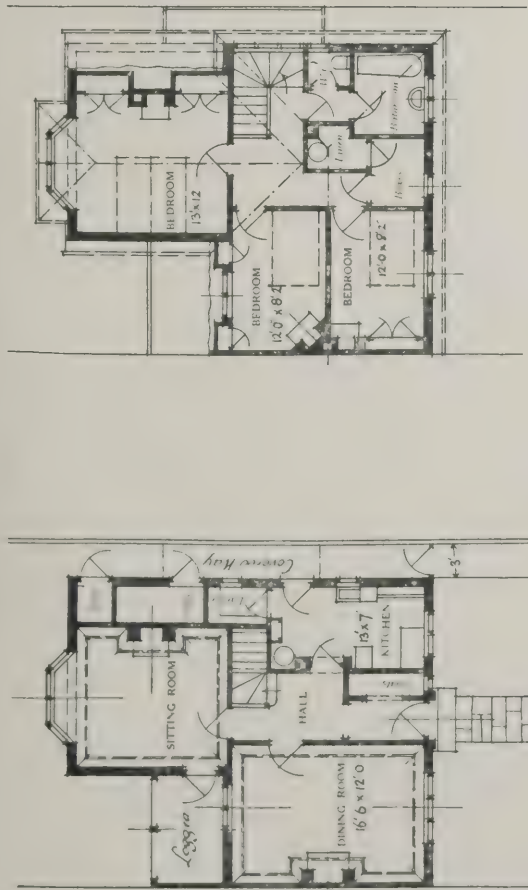
SCALE 0 10 20 30 40

Design Placed Second. By Wm. W. Scaife.

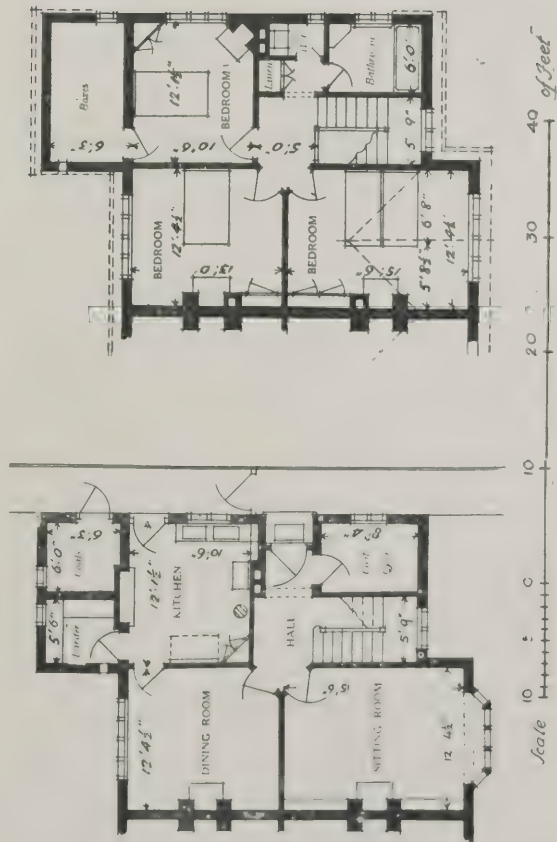




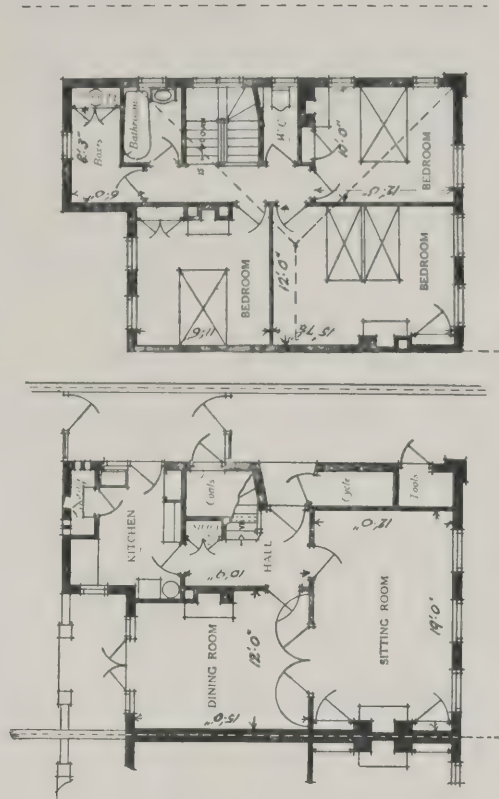
Design No. 5. By David A. Adam.



Design No. 4. By Alex. Pease, R.I.B.A.



Design No. 6. By F. J. Furnish.



Design No. 7. By B. Wakefield, Licentiate R.I.B.A.

PLANS SUBMITTED IN THE SMALL SUBURBAN HOUSE COMPETITION.

Scale 10' 20' 30' 40' of Feet

## HERE AND THERE.

"DOWN TOOLS," formerly exclusive to the building and engineering trades, has now been appropriated by all and sundry. Thus, within the past few months we have had a succession of different applications. The "Down Dishes" of the hotel kitchen staffs continues to envelop appointments for lunch and dinner with a horrid uncertainty, while the complementary phrase, "Down Dusters," has harassed managers to distraction: and now there has arisen from the precincts of Burlington House the agonising cry of "Down Pictures." It is a place full of fearful memories, that little cobbled passage on the west side where an endless procession of pictures wends its way at the appointed times in March, into the gloomy vaults of the Academy. One may stand at the doorway and see Art coming in under all sorts of conditions, from the anxious lady with her treasure wrapped up in tissue paper to the cartloads that are dumped down as so much merchandise. All go through that gloomy portal, passed from horny hand to horny hand, into the dark recess at the further end, there to be engulfed by The Lift, and so upwards to the unknown. It is not without a wistful smile that one sees that elevator taking up its load, a score or more of pictures leaning against one another in cosmopolitan confusion. Here, like men in a swimming bath, no distinction of rank is observable: all go up to the exhibition floor as so much paint and gold: and the flawless frames which have been saved by cotton wool and paper padding from the joltings of an outside world have here to take their chance of chips and scratches. Albeit, with the lift going merrily up and down on sending-in days there is a glorious excitement of hope ascendant: and so the gloomy vault has a certain magic attraction. It is quite another place a month later, when those little perforated cards have been sent out, regretting the inability of the Council to accept the work submitted, and requesting its removal. The vault is then a veritable tomb of dejection, and weary artists receive back their pictures with as little interest in them as the horny-handed gentlemen displayed when receiving them. But to the Academy the getting rid of these thousands of works is a very onerous matter, and the cry of "Down Pictures" must have caused a pretty trouble: for delay does not improve the temper of the disappointed artist, and the gentlemen who handle the pictures have a liking for the taverns of Vigo Street which does not improve theirs; and so, altogether, I am glad I have had no connection with this coming Academy exhibition. But former years have given me some insight into its subterranean working, and I would remind any who leave their pictures to the last, that no amount of bribery will ever get them in after 10 p.m. on the appointed day has struck. The Academy oyster shuts up to the minute, and shuts tight, and it will be "The Tip That Failed" in every attempt to call back time.

Mr. George R. Sims, who continues to astonish us with that facility of writing which fills innumerable yards of "Mustard and Cress," has been giving his cachet to the suggestion for arcading streets in our towns and cities. It is, of course, no new suggestion, and, so far as London is concerned, it is one that crops up periodically; with the single recent result, and that an unfortunate one, of some shops at the top of Shaftesbury Avenue with an arcade on the first floor. But all who have walked the length of the Rue de Rivoli will agree that an arcade properly carried out is a very attractive place. The colonnade of Regent Street Quadrant must have been a similarly pleasant place, even if more shut in than the Paris example, which has its open side to the Tuileries Gardens and the Louvre. Yet the sole remnant of Nash's scheme, the colonnade of the County Fire Office, gives us a taste of the original quality, and, to me, very agreeable it is.

From an architectural point of view these arcades at least enable a satisfactory appearance to be given to the ground storey, and in this particular they get over the old problem of the plate-glass shop front; while from the point of view of the shopping public and the visitor walking abroad they have many attractions. In hot weather they afford a pleasant shelter which is far more satisfactory than a string of awnings of all sorts and sizes, and in wet weather they are a positive boon; and if we are not so greatly troubled with the sun in this country as to demand every means of escaping from its effects, the rain is our common portion, for, as the Shakespeare's clown says, "the rain it raineth every day." Nobody, I suppose, has a wider knowledge of London than Mr. Sims, yet the only two places of shelter which he can call to mind are the colonnade already mentioned and the wooden shelter in the Broad Walk of Regent's Park: while "on Sunday there are not even the usual shop awnings, and even on weekdays these are small protection, because directly you have taken shelter a young gentleman generally brings out a long pole and pushes the awning back."

A very good case, then, can be made out for the arcaded street, and it would be an experiment worth trying to have one carried out on ample lines—not as a sort of toy promenade, but as a substantial addition to the amenities of the street. And an even stronger claim might be put forward for an arcaded or sheltered footway across the London bridges, where the thousands who now tramp daily to and fro over the river must needs fight in the open with a downpour from the west or a cutting wind from the east. Those who have experienced this will readily support some scheme of protection, both from the elements on the outer side and the splash and dust of traffic in the roadway. Truly the bridges were made for man, and not man for the bridges.

\* \* \* \*

It becomes rather wearisome to pile complaint upon complaint in the matter of competitions, but facts as they occur require to be recorded in order that the case for reform be well attested. This my reason, then, for drawing attention to the competition for working-class dwellings at Monaghan, of which place I have lived hitherto in total ignorance, but which I now find is a town not far from Belfast. Here, as elsewhere, the housing problem has to be faced by the local authorities, and they are proposing to meet the case by converting the military barracks into dwellings suited to the needs of working-class families, with contemplated extensions; the whole cost of the scheme being put at £4,000. There is no occasion for comment in any of this. It is the advertisement which the Urban Council have published that calls for notice. This invites "quotations from experienced architects for the preparation of plans, estimate, and specification," and must therefore be marked down in the Black Book. The Competitions Committee of the Institute might well send a polite letter to the Town Clerk of Monaghan pointing out that architects, as a profession, do not quote publicly a round sum for doing a job, even though—*pace* Dignity—this is sometimes done privately.

Taking into account the many, many times that protests have been made against the idea that architects are ready to send in lowest quotations for projected work, it is surprising that any urban council should still be under the misapprehension. Architects, as everybody knows, in a profession that is overcrowded, have to put up a stiff fight for existence, but it can fairly be said that as a body they maintain a good standard of professional integrity, and they will naturally resent any assumption by a local authority that their practice is carried on by barter.

UBIQUE.



## THE DESIGN AND ARCHITECTURAL TREATMENT OF THE SHOP.\*

BY H. V. LANCHESTER, F.R.I.B.A.

WHAT is mere buying and selling that it should be glorified? A shop is a shop, or rather *was* a shop; it is now, I believe, a "store" or "stores," and with the later appellation comes the effort to make it architecturally impressive. Of late years a tendency has arisen to reinforce the appeal made by the display of goods in ways not directly concerned with the actual business of supplying a want. Among the methods that are calculated to impress the emotional and imaginative faculties architecture takes the foremost place. One notices with pleasure an increasing tendency to appeal by means of refined simplicity rather than showy vulgarity, and this tendency is justified by the fact that delicate wares gain by a delicate setting, but, on the other hand, suffer in a coarse one.

It is hardly necessary to point out that while it is customary to display goods to a much greater extent than formerly, it has been found preferable to display them in a setting more or less architectural than to rely solely on the goods themselves. I venture to think that while the methods on which retail trade is conducted are progressing with great rapidity, the buildings for the purpose have not kept pace with them. More particularly in the matter of artificial lighting, so important in a climate like that of England, have we failed to take advantage of the resources at our disposal. I think that we are too apt to get a restless effect by a multiplicity of lighting points, and that the eye is unnecessarily distracted and worried by such methods. Further, we have yet something to achieve in making the best use of natural light in a large block of buildings. We need not depend on reflectors alone for improved distribution of light over the interior of a building. A great deal can be done with more economy of space by the use of prismatic glass designed so as to bend or deflect the rays of light to where they are most needed. Indeed, I believe it would not be impossible to abolish the awkward and unsatisfactory shop-blind by the substitution of a small projecting hood decoratively treated, but kept as light as possible and filled with refracting glass. A hood such as this distributes the rays so that concentrated sunlight would not fall on any one spot, and it would at the same time answer the purpose of directing a useful proportion of the light towards the interior of the shop.

Another matter that is too often neglected is the provision, in the design for the façade, of suitable areas for the display of the name and such other inscriptions and announcements as may be desired. The designer who neglects these will have only himself to thank if he finds his building afterwards disfigured by features conflicting with his intention.

In the best shops in Paris the art of window-dressing is certainly practised with no less skill than in London, and over there the windows are almost invariably divided up into what an architect would regard as reasonable widths. The divisions are not, as we sometimes see them here, of coarse stone that repels by its harshness in comparison with delicate wares, but are usually in polished marble or bronze, so refined in design and highly finished in execution that no jarring note is introduced. With the upper part of the premises the tradesman does not so much concern himself—he does not desire it to compete with the exhibition on the ground floor; and so long as it is not obviously ugly or mean, and is adjusted to the internal requirements, he will be satisfied.

Our streets should present the dignified appearance dependent on fine proportions and beauty of detail.

Unfortunately, most of us have been trained, in our appreciation of these beauties, on the traditional buildings of the past, among which no prototype of the modern shop will be found.

It has always struck me as curious that the covered arcade from street to street should not have become a more popular feature in our cities.

In many of our larger shops we can see recessed windows in one form or another. The main contention, which has been prominently before us lately, is an architectural one, and, in my opinion, it has arisen from a false conception of what really constitutes fine architecture.

The tradesman claims to be entitled to maximum frontage for the display of his wares. In most shops you will see a subdivision into separate sections of the goods exhibited, extended even to the framing up, as it were, of things to which it is desired to draw special attention. When this is the case, the subdivision of the area of glass by piers projecting but little and not of undue width surely cannot be regarded as detrimental.

Fortunately architecture has other modes of expression than mere mass. It can give strength to a pier and lightness to a wall, and its resources are undoubtedly equal to the solution of the problem of the shop. That it has not hitherto been solved more frequently may be put down to two causes, the general apathy towards the arts and mental indolence on the part of the architect. For the latter I think there is this excuse, that he sees but little encouragement to devote himself to perfecting himself in his art when those who employ him display so little appreciation of the difference between good and bad architecture.

The advent of plate-glass in enabling an effective permanent exhibition to be made of goods securely protected from the weather, was really the dominating influence deciding the type of the modern shop, and it is this plate-glass that has caused all the trouble to the architect bred and educated to perpetuate the old traditions. This conflict ought never to have occurred, and we should have been saved from many of the illogical and grotesque efforts that now disfigure our streets had the education of the architect been placed on a more rational and logical basis, and had he been able to meet the legitimate demands, instead of placing himself in opposition to them.

Attempts to solve the problem may be roughly classified under four heads. First, we have the building kept as light and open above as it is below. This, of course, is a natural treatment where all the floors are occupied for business purposes.

Secondly, we have the lower portion treated as an arcade, the method for which there is most traditional precedent.

Thirdly, the form of design that suggests a deep beam, either solid or pierced, over the lower openings; and, fourthly, the setting back of the upper part from the line of the shop front, so that the latter has no weight over it. As a loss of area on the upper floors is involved, the adoption of this method in valuable positions is infrequent.

In all cases it is an axiom that the upper portion of the façade should not receive a treatment emphasising its weight—and worse, concentrating it over voids. For this reason the use (or misuse) of columns in such a position is to be deprecated. If kept fairly flat and simple the façade will carry itself over the voids much better than if cut up with strongly marked forms. It is, however, difficult to lay down general rules, good design being too subtle a thing to be reducible to the dictates of a few bald maxims.

\* Extracts from a paper read before the Royal Society of Arts on April 23rd.



## OUR PLATES.

*Lecture Hall, Institution of Electrical Engineers.*

THE lecture hall at the new home of the Institution of Electrical Engineers on the Embankment, just to the west of Waterloo Bridge, is a remarkable room in many ways, but chiefly on account of its woodwork. This is entirely of Cuba mahogany left untouched, with great carved drops between the panels and cartouches bearing the names of great men associated with electrical science and invention. Not a moulding is to be found on the panels, the edges of which are left square; while the carved drops are so bold, and of such huge proportions, that they seem like the work of a giant. The carving was executed by Mr. W. S. Frith, the mahogany having been supplied by Messrs. Wm. Oliver and Son. The lecture hall is 60 ft. square, seated for 420 persons, and top-lighted. A detail of the woodwork is given on page 456 of this issue.

*Sculpture on the Grand Palais, Paris.*

The Grand Palais, like all important buildings in Paris, is largely embellished with sculpture. On the main façade this is especially so, for here are to be seen not only carved enrichments to doors, windows, and columns, but a number of separate figures representing the Arts. The detail which we publish on the opposite page is typical of the work and exhibits that graceful freedom which we are accustomed to associate with modern French sculpture.

*Doorway to the Ferguson Library, Stamford, U.S.A.*

A detail of the entrance doorway to the Ferguson Library, Stamford, Conn., U.S.A., is published on pages 470 and 471, as the twenty-third example in our series of working drawings by well-known architects. It does not call for description, being self-explanatory; though it may be observed that a great deal of excellent work of this character is now being carried out in America. Our illustration is from "Architecture."

*"Lombarden," Limpsfield.*

This house, which we illustrate on page 467 as the seventh of our new series, was built for Mr. Morton Evans from designs by Mr. Mervyn E. Macartney, F.S.A., F.R.I.B.A. It occupies a site almost on the edge of the common, over which it commands splendid



"LOMBARDEN," LIMPSFIELD, SURREY.

views. It is built of local stone in coursed rubble, with window facings of Bath stone. The roofing tiles are old. The accommodation on the ground and first floors is shown by the accompanying plans: above, in the attic, are two bedrooms and a boxroom.

*R.I.B.A. Problems in Design.*

We publish on page 469 a design for a fire-resisting warehouse by Mr. A. Reginald Shibley, of the Liverpool School of Architecture, recently approved for Subject VI. (b) by the Board of Architectural Education. The building was to be set on a site 40 ft. by 80 ft., with two frontages 40 ft. wide to two parallel streets. It was to comprise six storeys, and each floor was to be capable of sustaining a load of 4 cwt. per ft. super. The drawings required were  $\frac{1}{8}$  in. and  $\frac{1}{2}$  in., with  $\frac{1}{8}$  full-size details of important parts of any steel construction.

*House at Ilkley, Yorks.*

The house at Ilkley—"Heathcote"—which is shown on the Centre Plate of this issue, is very characteristic of the individual treatment which has made the work of Mr. Lutyens so distinctive. It is a finely massed house, with much vigour and freshness in the detail. A view of the main staircase was given in our issue for March 5th last.

## CORRESPONDENCE.

*The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents.*

*Correspondents are asked to be brief and to write on one side only of the paper.*

*Against the Garden Suburb Movement.*

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—At a time when a section of the public is greatly interested in the formation of garden suburbs and villages, is there not a danger that much of the energy which should be devoted to the improvement of our towns is going to be squandered upon attempts to provide places of refuge from them? Man has built towns for his convenience, and with our improved methods of sanitation there is no reason why they should not be made quite healthy.

Is it not time that we recognised that a tendency to erect small segregated dwellings, such as is shown in the garden city movement, is not a mark of architectural progress, but the reverse? And this itching for greenery is another ominous sign; it is clear that we have many men and women in our midst who, so far from wishing to escape from savagery and to become more human, are unable to maintain among themselves even that comparatively low state of civilisation at which most of us have already arrived. Incapable of the communal effort necessary for the creation of beautiful towns, they are longing to get back to the little homes which, in their configuration, so closely resemble the huts of primitive man, and to the leafy branches where our still more remote ancestors were once content to dwell.

Surely, this is a phenomenon which must fill every good citizen with the gravest alarm. There is evidence here of such rapid retrogression that nobody would have any right to be surprised if by the time he next visits a garden suburb he finds that its inhabitants have deserted their houses and have taken to the trees. Many of these houses are of a gimcrack type, and obviously only temporary; but perhaps it would be unjust to criticise them upon this account, for they may be only halting-places for people who are bent upon another destination.

I have thought it my duty to draw your attention to this view of a matter of which the opposite view is generally taken for granted, in order that it may be well ventilated in your columns. By this means a real evil may possibly be checked before it has gone too far.

ENGLISHMAN.







HOUSE AT ILKLEY, YORKS. EDWIN





*Photo : Bedford Lemere & Co.*

TYENS, A.R.A., F.R.I.B.A., ARCHITECT.







GRAND PALAIS, PARIS: DETAIL OF SCULPTURE.

*(See page 461.)*







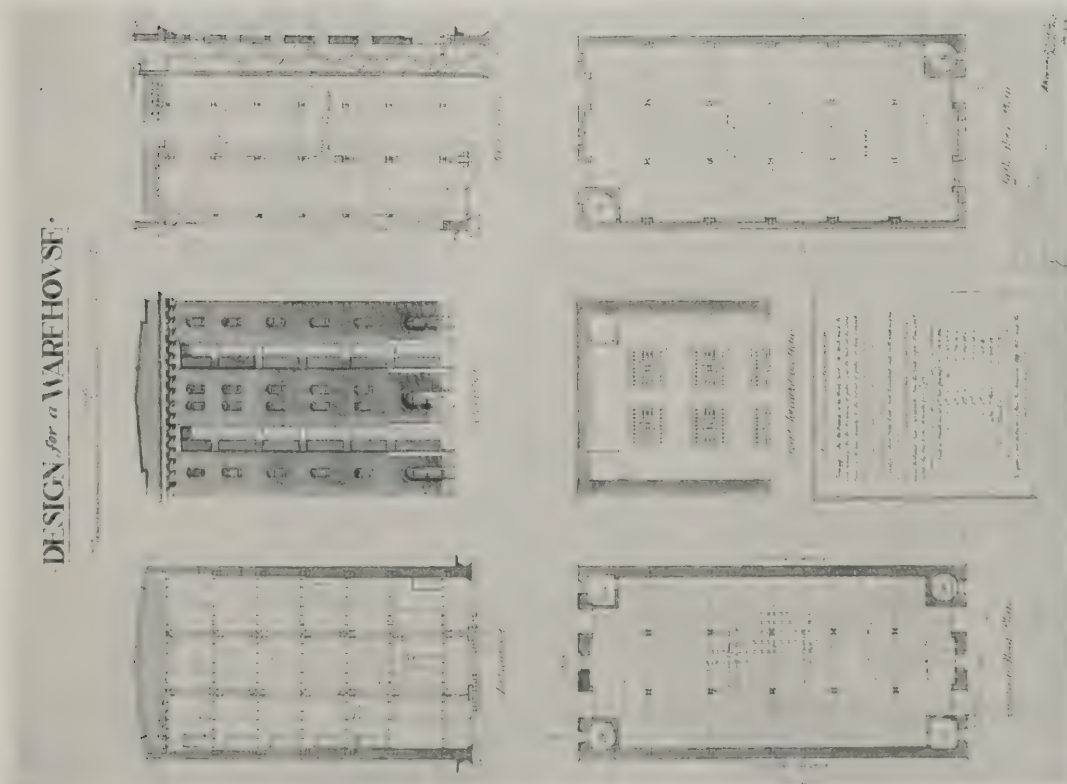
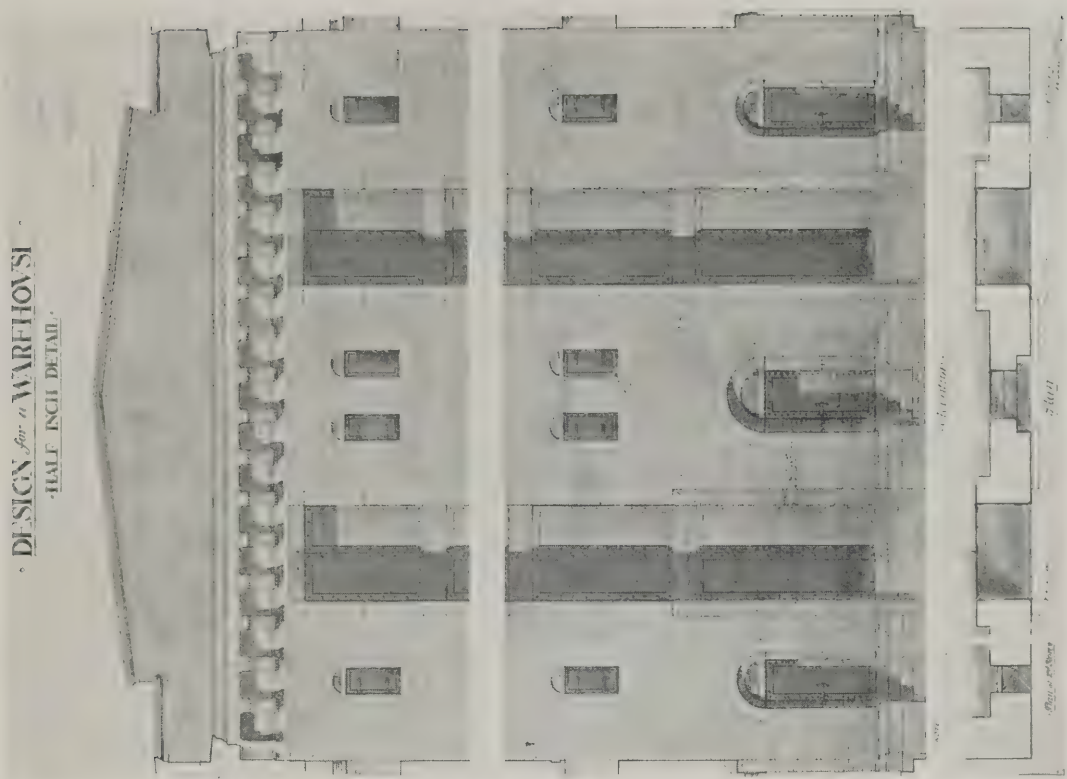
MODERN DOMESTIC ARCHITECTURE. HOUSES OF INTERMEDIATE SIZE. VII.—“LOMBARDEN,” LIMPSFIELD, SURREY: ENTRANCE FRONT.

MERVYN E. MACARTNEY, F.S.A., F.R.I.B.A., ARCHITECT.

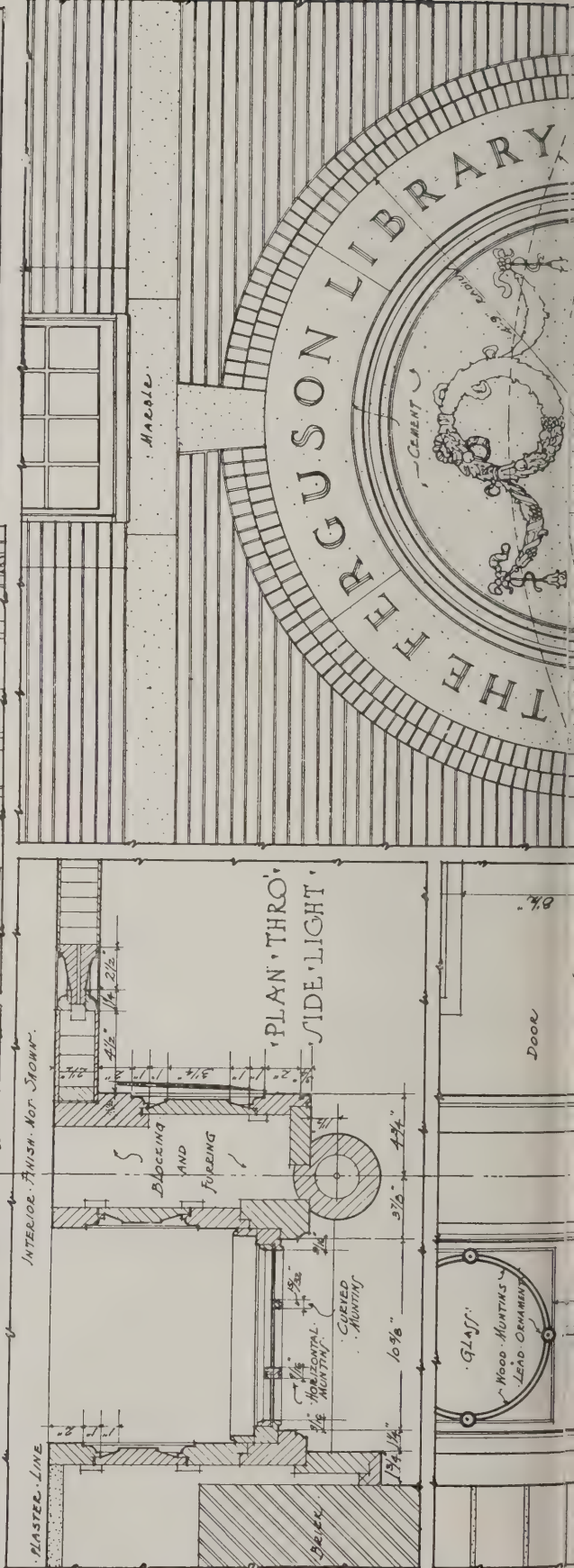
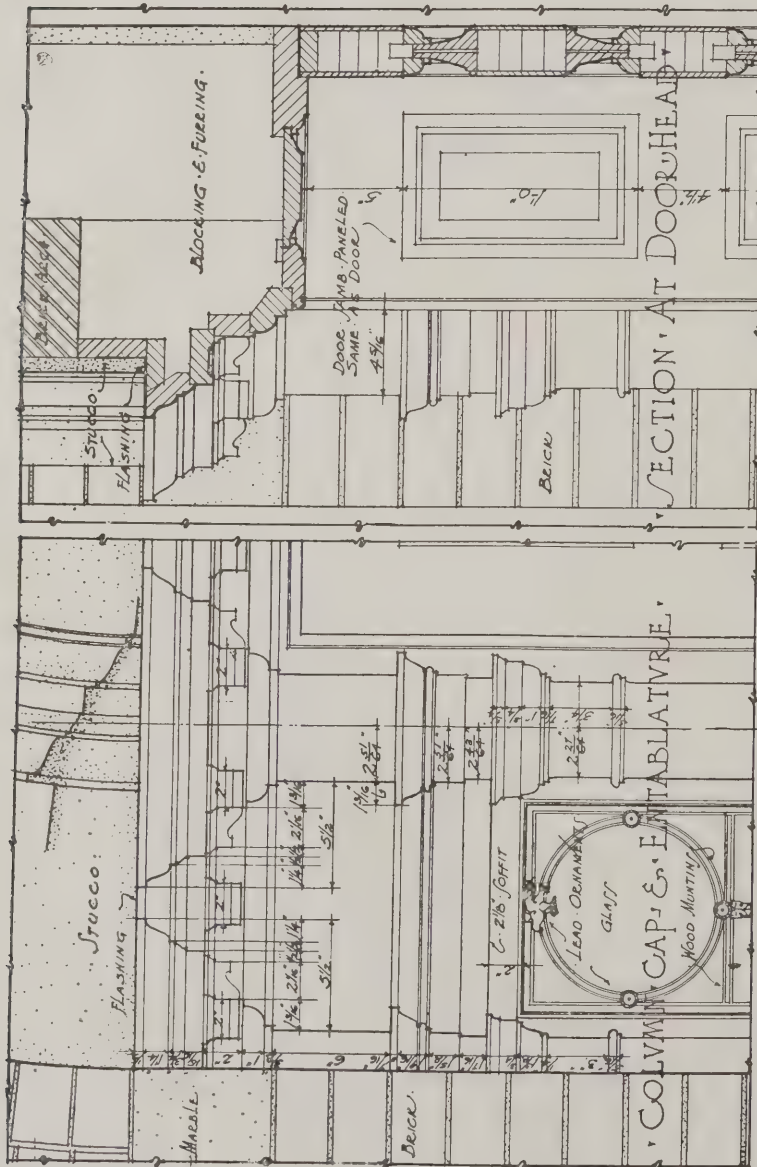
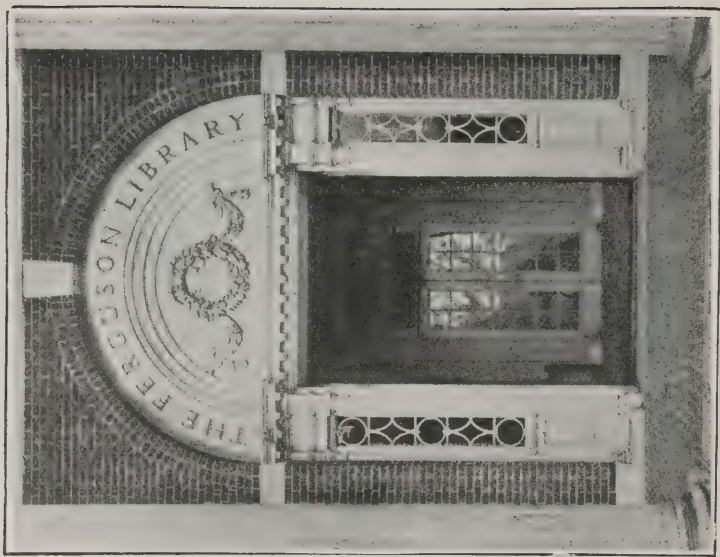
(See page 464.)



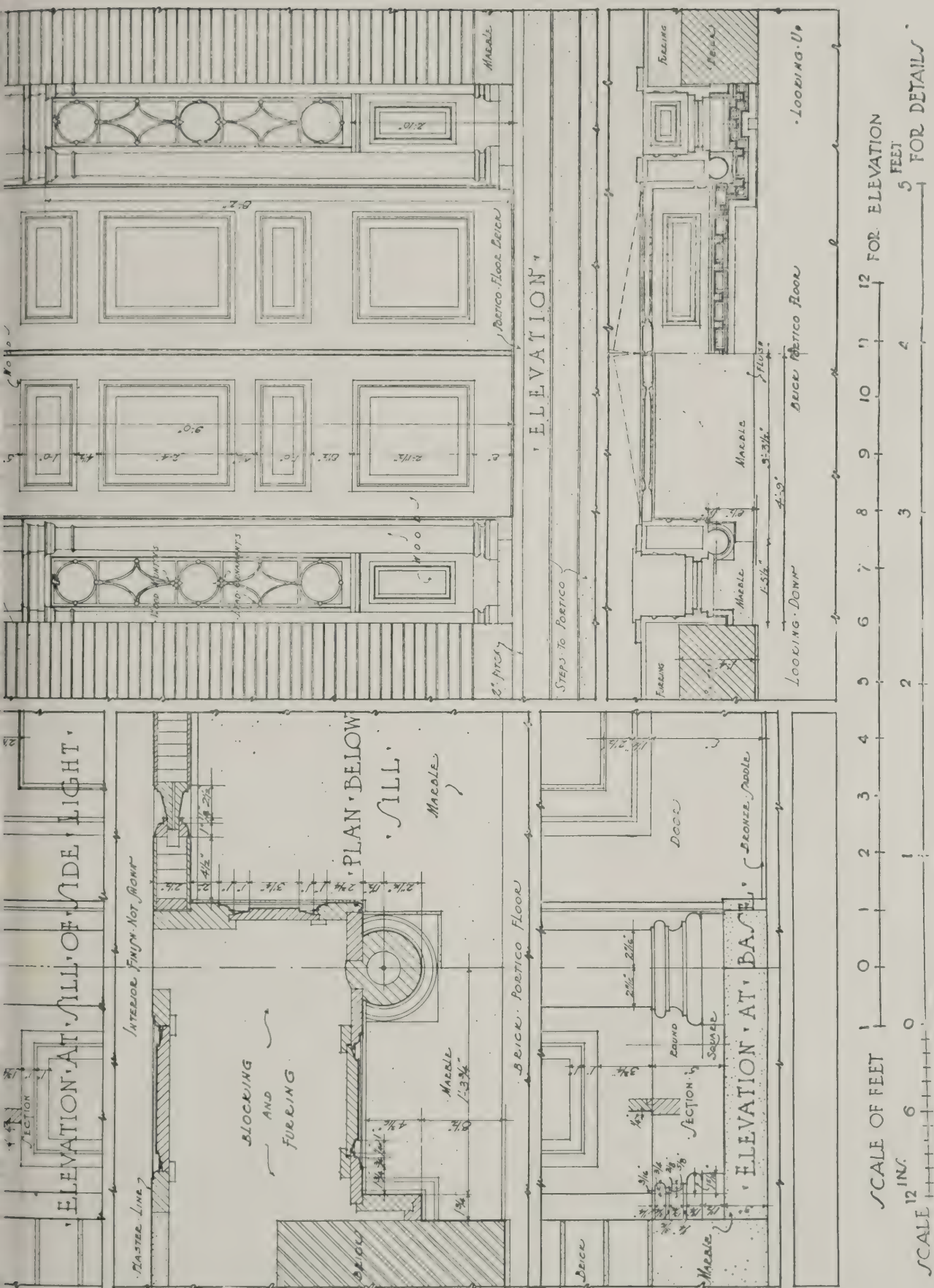




TESTIMONIES OF STUDY FOR R.I.B.A. FINAL EXAMINATION: APPROVED DESIGN, SUBJECT VI. (b),<sup>2</sup>A FIRE-RESISTING WAREHOUSE.  
BY A. REGINALD SHIBLEY.  
(See page 464)







WORKING DRAWINGS BY WELL-KNOWN ARCHITECTS. XXIII.—DETAIL OF ENTRANCE TO THE FERGUSON LIBRARY, STAMFORD, CONN., U.S.A.  
TRACY, SWARTWOUT AND LITCHFIELD, ARCHITECTS.

(See page 464.)

## MODEL ANSWERS TO R.I.B.A. EXAMINATION QUESTIONS.

## INTERMEDIATE EXAMINATION.

BY G. E. FRANCIS.

## HISTORICAL ARCHITECTURE.

## (b) BYZANTINE AND ROMANESQUE.

Not more than five questions were to be answered. Time allowed, 4 hours.

1. Quote salient examples of what you understand as Byzantine (not Romanesque) architecture.

Answer.—Byzantine art may be divided into two periods. The first and greater period is that of the sixth century, and was due largely to Justinian (527-565 A.D.). Important buildings erected during this period were:

SS. Sergius and Bacchus, Constantinople, A.D. 535.

S. Sophia, Constantinople, A.D. 532-537.

S. Lorenzo, Milan, A.D. 530.

S. Vitale, Ravenna, A.D. 526-547.

Buildings erected during the second or lesser period were:

S. Sophia, Salonica.

S. Irene, Constantinople.

S. Theodore, Constantinople.

S. Mark's, Venice.

2. Compare Byzantine and Romanesque capitals, and sketch examples.

Answer.—There were several distinct types of Byzantine capitals, three of which are illustrated. The acanthus leaf, deeply channelled, and of V-shaped section, was adopted from the Greeks, but was made more conventional, having acutely pointed leaves, with deeply drilled holes. The character of the carving was, in fact, due to the use of the drill, the ornament being incised, and the main form of the capital preserved.

The Romanesque capitals illustrated are Italian examples. They all show rough attempts at classical details, although some from the south of Italy are very good. The chisel was employed, and the carving was applied, in contrast with the Byzantine style.

3. Show by sections the construction of any vaulted Romanesque building you are acquainted with.

Answer.—An example of Northern Italian Romanesque, S. Michele, Pavia, is illustrated.

The half cross-section and elevation of one bay of the nave show a vaulted compartment, approximately square, with vaulted side aisles in two stories.

All the piers are of clustered section.

4. Describe, with sketches, the method employed to fix marble revetment to the wall of a Byzantine building and draw an example of this decorative treatment.

Answer.—The example illustrated is from one of the great piers in Santa Sophia.

First there is the moulded skirting of white Proconnesian marble, then a streaked band of the same variety. A band of verde antique follows, above which is a row of slabs alternately verde antique and Synnadan. A second and similar row comes above a band of rosy cipollino.

The frieze below the cornice is of marble scutell work. The fixing was accomplished in an extremely simple manner, without thought of disguise.

The slabs, sometimes of great size, were placed vertically, being of no constructional value.

At the angles the lap shows in a most obvious manner. The slabs were tied to the wall with long hook-like clamps, the ends of which were fixed with molten lead if the wall was of stone, or if of brick they were wedged into the joints.

The clamps were usually of iron, but in important and careful work they were of bronze.

5. Draw (to not less than 5 in.) half plans at ground and gallery levels, looking up, and describe the construction of Santa Sophia, Constantinople.

Answer.—Santa Sophia, Constantinople (A.D. 532-537), is the masterpiece of the Byzantine style.

As may be seen on looking at the plan, the dome governs the whole composition.

One large central dome is supported by four huge stone buttresses and two semi-domes, the latter being in turn buttressed by semi-domes, and so on in this manner, until the whole of the thrusts were lowered to the ground.

This system resulted in two main characteristics: First, a great central unobstructed floor-space (the area of the supports to the whole building in this case being about 1 to 8), and, secondly, the preservation of the main outline, i.e., all the buttresses were necessarily within the main walls of the building.

On the north and south sides of the nave are the aisles in two stories, the upper being for women. Light was admitted through windows in the main walls, and also through numerous lunettes in the bases of the domes.

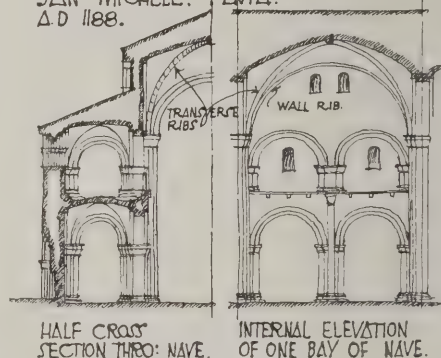
Large bricks, about 2 ft. square, were used in the domes, laid with thick mortar joints, which did not radiate, the flat inclination employed serving to diminish the thrust.

The four main piers are built in stone, while the rest of the walling is of brick, and the columns are monoliths of marble.

The dimensions of the columns were always settled before the work was started, and then the whole shell of brickwork was constructed and allowed to settle.

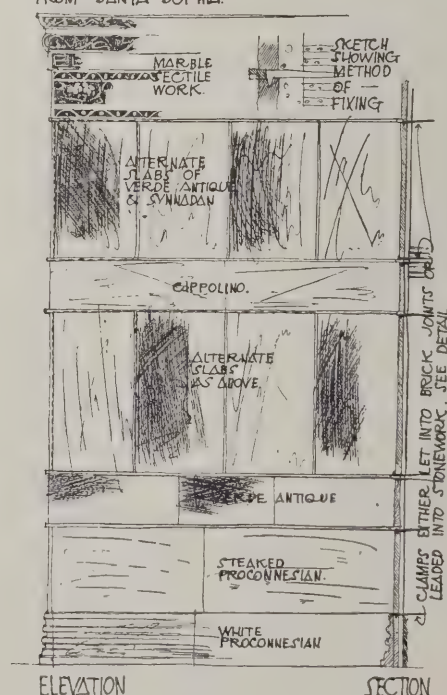
The ornament in the form of marble

SAN MICHELE. PAVIA.  
A.D. 1188.

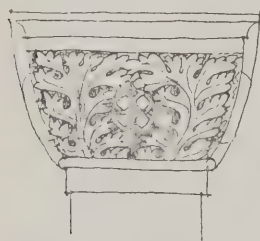


Question 3.

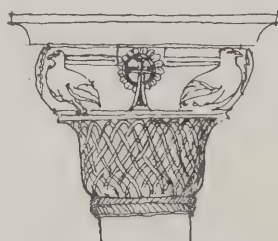
MARBLE REVETMENT  
FROM SANTA SOPHIA.



Question 4.



IMPOST CAPITAL.  
S. SOPHIA.



BIRD & BASKET CAP.  
S. SOPHIA.



BYZANTINE IONIC CAP.  
ST. DEMETRIUS. THESSALONICA



CAP. STA TRINITA  
VENOSA.



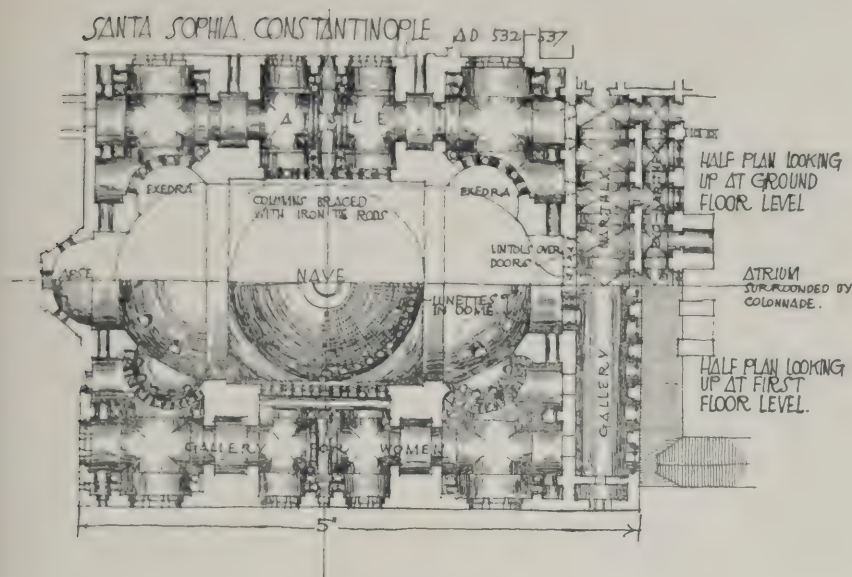
CAP. CATHEDRAL  
AT MOLFETTA.



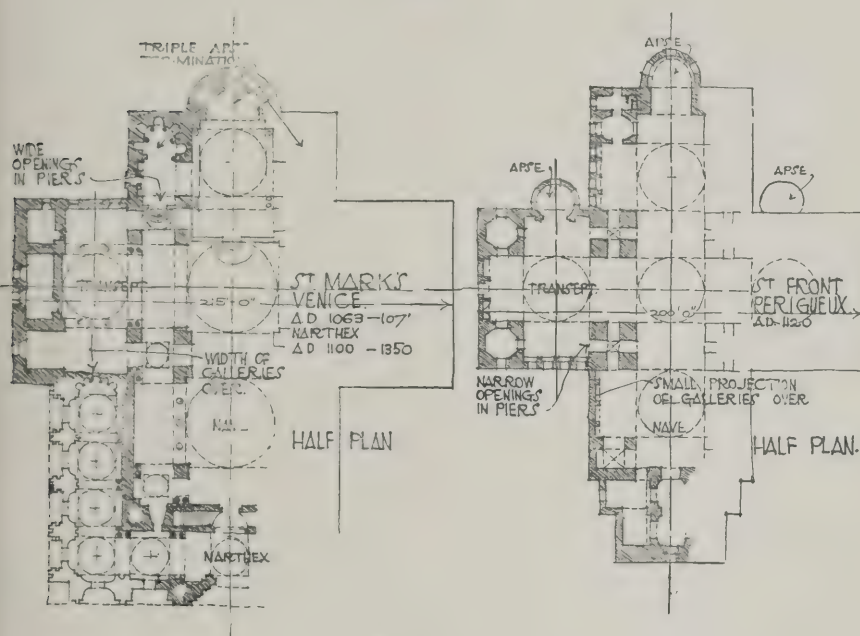
CAP. FROM CLOISTERS  
ST. PAUL ROME.

Question 2.





Question 5.



Question 6.

ings and mosaics was then applied, the former in the manner indicated in answer 4.

6. Compare the plan of St. Mark, Venice, with that of St. Front, Périgueux.

*Answer.*—The plan of St. Mark (see sketch) is that of a Greek cross with a dome over the crossing 42 ft. diameter, and four others over the arms of the cross slightly smaller.

The triple apse arrangement of the basilican type is retained.

The square piers supporting the central dome are pierced with wide openings on both floors. Those on the upper floor connect the galleries, which are of the full width of the piers, and are supported by rows of columns.

St. Front, Périgueux, is also a Greek cross in plan, with domes over the nave, crossing, transepts, and choir, all nearly the same size.

The three apses are placed respectively at the east end of the choir and on the west side of the two transepts.

The gallery passage is set against the main wall, and is very narrow.

The barrel vaults supporting the central dome are narrow, with the result that the openings through the piers on the ground floor are narrow as compared with those of St. Mark (see sketch).

### LIVERPOOL ARCHITECTURAL SOCIETY.

In the annual report of the Council of the above Society, which was presented at the annual general meeting on Monday, April 28th, reference is made to the King Edward Memorial Scheme in connection with St. George's Hall, and the opinion is expressed that an appropriate and acceptable form of memorial would be a drastic rearrangement of the Pier Head at Liverpool.

Referring to the matter of unprofessional conduct, the Council strongly impress upon members that in works where another architect has been already engaged it is their imperative duty to notify the original architect before undertaking alterations or additions. In connection with the circular letter of the R.I.B.A. expressing the view that it is unprofessional for architects to have their names published on signboards outside buildings, the Council of the Liverpool Society agree that the prominent exhibition of the architect's name is undesirable, and have communicated with architects whose names were known to be so appearing; but the Council does not see any objection to the name of the architect

being introduced in a quiet and unobtrusive way.

The Liverpool Master Builders' Association having suggested that in bills of quantities for plumbers' work, immediately after the lump sum item for sanitary fittings there should be a lump sum item for master plumbers' remuneration at a rate of not less than 10 per cent. of the value of the goods, the suggestion was carefully considered by the Council of the Liverpool Architectural Society, who replied to the Association that they were not in favour of fixing a specific percentage of profit. A further communication was received from the Association asking the society to arrange for an item to be included in all bills of quantities to cover the cost of national insurance. The Council replied that as the Insurance Act was a standing charge upon all contractors, it was not an item which should properly be put into a bill of quantities.

### DUBLIN MUNICIPAL BUILDINGS COMPETITION.

The award in the above competition was announced in our issue of April 9th, and in the same number the perspective and plans of the first premiated design were reproduced.

The new scheme required the provision of a building that would efficiently house all the departments included in the conditions, *i.e.*, every department except the town clerk's. Accommodation had therefore to be made for the Rates, City Treasurer, City Accountant, Borough Surveyor, City Architect, Electric Light Department, Sanitary and Public Health Departments, Labour Bureau, and for various committees and their requisite offices. Special entrances were asked for the Labour Bureau, the Electric Light Showroom, the Staff of Sanitary Department, and to the waiting room adjoining the cash office of the City Treasurer's Department. The sum stipulated as being available for the building was £55,000, a sum vastly exceeded in a large number of the designs.

The site of the new buildings immediately adjoins that of the existing municipal buildings, whose principal entrance is in Cork Hill. Including these buildings, the site has a frontage to Lord Edward Street of 330 ft., and a maximum depth of 110 ft., decreasing to 67 ft. on Cork Hill. Light is available on three sides. The depth of the site practically limited the solutions of the problem to two: (1) That which provided a central corridor, and (2) that which provided a central court or courts with corridors round. Of the two, the first was naturally the more economical and convenient, and has been adopted by the authors of the first premiated design. The second involved the provision of corridors on at least three sides of the court, and consequently added to the cube.

The existence of the present buildings complicated the problem, for it was left open to the competitors to choose whether they should be retained and remodelled or demolished.

One façade of this building was illustrated on page 390 in our issue of April 16th, and quite a casual glance will make it at once clear that whatever architectural merit it possesses as a building of a domestic character, yet, as a front to a public building, in which one naturally looks for monumental architecture, it is unsuitable. Again, the front of this same block to Lord Edward Street is modern, and, to put it quite mildly, does not possess the merit of the



other façades. Immediately opposite, on the other side of Cork Hill, is the City Hall, an eighteenth-century building of some considerable merit, treated with a Corinthian order running through two stories and possessing a certain monumental character quite lacking in the buildings opposite it. Any harmony between these two buildings, other than the harmony of colour and texture, was impossible, and as it was left open to the competitors to demolish the existing offices several designs show completely new offices for all departments; the vast majority retain the present buildings and land their main façade in architectural confusion.

The levels of the site, which slopes at a considerable gradient on all sides, required nice discretion in the determination of floor levels, and in many instances involved differing levels in a continuous length of corridor.

#### *First Premiated Design.*

Messrs. MacDonnell and Reid, of Ely Place, Dublin, whose design is placed first, retain the existing buildings practically untouched, and adopt in their new buildings the central corridor type. Generally, this arrangement of corridor has the drawback of insufficient lighting unless lighted well from both ends and by cross lights. Owing to the position of the old building, end light was not feasible, and the authors have chosen to top-light their ground-floor corridors. This has the inevitable result of setting the corridors on the first floor back over the back portion of the lower rooms. Although this arrangement may be commended as ingenious, it has this fatal objection—that incessant traffic along the upper corridors would cause considerable annoyance in the rooms below, unless the floors could be guaranteed soundproof. Owing to an adequate provision having to be made, both with the depth of rooms and the width of the corridors on the upper floors, the rooms on the ground floor have necessarily been made deep—perhaps deeper than desirable. Apart from these two objections, the arrangement is to be commended as ingenious. On the second floor the corridor is set on the front of the building—for what reason it is difficult to say. It has the inevitable result of causing one to traverse fully 55 ft. of cross corridor before one even gets to the corridor from which the rooms are entered. It would, in our opinion, have been both more economical and convenient to place the rooms on the front. The provision of more windows in the attic on elevation would have improved rather than detracted from the appearance of the front.

In several minor points the plans of this scheme depart from the conditions, but in all probability the departures are mostly for the better. However, considering the conditions and having regard to our own personal experience, we rather doubt the wisdom of placing the entrance to the Labour Bureau in such an important position.

With regard to the elevations, a careful examination of the plans and the elevations together will reveal several points worthy of notice. It may be taken as an axiom in architectural composition that the treatment of the façades of any building should express clearly and definitely the masses of the plan, and any elevation which does not take cognisance of this runs the risk of being dubbed "merely an exercise in façade making." Perhaps it would be unfair to apply the criticism to this design, but we cannot but regard the very definite articulation of the end masses

in the central portion of the façade to Lord Edward Street without any justification whatever on plan as anything other than regrettable. On the first-floor plan more particularly it will be noticed how these masses are merely plastered on to the wall surface. Dealing further with the massing of the central portion, it is, in our opinion, very doubtful whether the length treated can stand the use of three such definite features. To obtain reasonable proportions in all of them necessarily narrows down the recessed planes of wall surface, and the result is somewhat confused—mass struggles with mass, and nothing dominates. Had the recessed planes been treated in a perfectly plain manner, with merely horizontal lines to connect the features and no pilasters, we should have felt more happy about the success of the treatment; but, even so, it is doubtful whether they would appear wide enough. The dominating feature of the front, the tower, appears to us to serve no useful purpose, either in massing or in anything else, and its removal would result in a considerable saving in cost. We should have thought that the close proximity of the City Hall would have more or less determined the scale and the character of the detail in the new buildings. Certainly the orders used in both the City Hall and the new building are approximately of the same height, and why the authors should have altered the order from Corinthian to Ionic we cannot tell. The existence of the small order in the old municipal buildings would in no sense determine the choice in the new block. There can never be any architectural harmony between them, and we should have thought that it would have been more feasible to read the City Hall and the new block together in one scale and treatment, and have merely deplored the interruption caused by the intervening block. Generally, the detail is Free Renaissance.

#### *Second Premiated Design.*

Mr. Hicks, too, has chosen to retain the existing buildings. He has adopted the double corridor and court treatment, which ensures perfect light all round, but naturally increases the cost. A glance at the first-floor plan reveals a length of corridor out of all proportion to the area of the rooms. However, in many respects the plan is to be commended. Generally, the disposition of the departments is good, and the access easy. In particular the arrangement of the entrance hall and the access from it to both the Rates Office and the principal corridors is well managed, and the hall itself is capable of a fine internal treatment. The position and shape of the Rates Office is as good as any solution submitted. It is our opinion, however, that this scheme would considerably exceed the stipulated cost.

In the elevations the author has chosen to carry through the Corinthian order of the City Hall, and is to be commended. In the actual handling of the façades his treatment has not been so successful. It cannot be too often reiterated that it is not allowable to plaster a feature on to the surface of a building for purposes of elevation alone—an elevation should grow logically from a plan, and any treatment that ignores this is faulty in its composition. A glance at the north-east corner of the new buildings shows a heavy mass stuck on with no justification on plan. However, the use of a well-proportioned order well spaced gives an effect of breadth and consistency of treatment entirely admirable. In the end masses it would perhaps be well if they were slightly widened—at present they appear a little

attenuated. The increased height in the attic does much to cause this, and it might with advantage be reduced. In the central feature, more particularly where it appears with a squat dome over an elegant order the effect is overwhelming. The detail, with few exceptions, is quiet and restful. We might perhaps point out the absence of responds to the order in the pilaster treatment on the recessed planes and the rather crude manner in which the order is imposed upon the basement without a band to strengthen the line. In the façade to Castle Street the author has been less fortunate. Exigencies of plan have given the front a picturesque line of very doubtful beauty. On the elevation there is an entirely fictitious appearance of balance that disappears on a reference to the plan, where features apparently balancing are found to be on different planes.

#### *Third Premiated Design.*

The design placed third, by Messrs. O'Callaghan and Webb, while retaining the old building completely, remodels the Lord Edward Street front, and the abolition of the segmental bay excrescence is entirely commendable. This plan, as a solution of the problem along the lines of the courtyard type, is perhaps, considering cost, a more feasible solution than the placed second—the buildings are more compact, and the corridor space is less wasteful. The Rates Office, which is most conveniently disposed, has unfortunately owing to the superficial area required, resulted in the almost complete abolition of the entrance hall, and throughout the floors the approach from the staircase is meagre and skimpy.

The elevations, as examples of the particular style that they emulate, are good—probably better than those of any other Free Renaissance design submitted. In composition the fronts show treatment that are the logical outcome of plan, although one may take exception to the undue height given to the basement and the somewhat meagre proportions given to the main entablature and blocking, one cannot but admit that the modelling of the façades has been on the whole carefully considered. With the exception of the broken line of sills in the central feature, the crowded treatment of the windows in the end masses, and an occasional exaggerated keystone, the detail is consistently in scale.

#### *Other Designs.*

Of the other designs submitted, few are worthy of any particular notice. Those that do command attention have swept the old buildings from the site, and have submitted an entirely new block—they all adopt the central corridor treatment. The two designs most worthy of notice under this head are those submitted by Messrs. Keefe and Robinson and Messrs. Wood and Clarke. Both these authors submit elevations of considerable merit—Neo-Grec in character. As plans, too, the schemes are good, and one can only suppose that cost has disqualified them, although in fairness it may be stated there is practically no difference between the cube of an entirely new set of buildings planned with a central corridor on each floor and the extension of the existing block by a building with internal courts. Mr. G. P. Sheridan submits an elevation to Lord Edward Street that carries along the treatment of the Cork Hill front of the old building, and as a solution of the problem along these lines is very much to be commended. If it is not exactly monumental in treatment it is at least scholarly, a thing sadly lacking in the general run of competition designs.



## PROJECTED NEW WORKS.

### *Tramcar Repairing Works, Leicester.*

New tramcar repairing works are proposed to be erected at Leicester at a cost of £23,000.

### *New Building for Messrs. W. H. Smith and Son.*

The site and buildings of King's College Hospital, St. Clement Danes, have been sold to Messrs. W. H. Smith and Son, who will erect new buildings there at a cost of £100,000. Mr. H. O. Ellis is the architect.

### *New Secondary School, Dover.*

A new secondary school for boys is to be built at Dover. The plans have been approved by the Higher Education Committee and the Kent County Education Committee.

### *Workhouse Extension, Goole.*

The L.G.B. have approved the scheme of the Goole Board of Guardians for alterations and additions to the workhouse premises, to cost £4,500. The tender of Messrs. Jackson and Oates, of Goole, has been accepted.

### *Widening of the Strand.*

The London County Council propose to widen the Strand between Adam Street and Durham House Street at a cost of £144,000. The scheme is to be carried out in conjunction with alterations to the Gaiety Music Hall.

### *Workmen's Dwellings, Northampton.*

A scheme for the erection of workmen's dwellings in Naseby Street and Court Road, at a cost of £6,000, is being considered by the Northampton Town Council.

### *Hythe Sea Wall.*

Hythe Town Council are advised that, in consequence of damage to the sea wall, the entire length will have to be rebuilt at a probable cost of £10,000. The Council have decided that plans and specifications shall be prepared.

### *Proposed Subway at Ludgate Circus.*

Mr. Frank Sumner has been instructed to report on the feasibility of constructing a subway for foot passengers at Ludgate Circus. The difficulty in the way of making a subway at this point is increased by the existence there of the Fleet sewer.

### *New Fire Station, Glasgow.*

The Watching and Lighting Committee of the Glasgow Corporation recommend that for the erection of a new southern fire station sites situated in Centre Street and Wallace Street be acquired at a cost of £5,200.

### *London Library Enlargement.*

With a view to increasing the usefulness of the London Library in St. James's Square, the committee have purchased a site behind the library at a cost of £18,000, where an extension is to be built at a cost of £10,000.

### *Housing Scheme at Whitley.*

The council at Whitley propose to borrow £9,700 for the erection of workmen's cottages on the land at the Hillhead, the Duke of Northumberland having extended the site by selling the council a strip of land at the low price of 1s. per square yard or this special purchase.

### *New Parcels Post Building, Liverpool.*

An important scheme in connection with the Liverpool Post Office has been decided

upon, with a view to providing more adequate accommodation for the Parcels Post Department. This is the erection of a new building on a site between Hatton Garden and Cheapside. Plans are being prepared by the Government officials.

### *New Bathing Pavilion, Margate.*

A Local Government Board enquiry has just been held at Margate into the application of the Town Council to borrow £5,500 for the erection of a bathing pavilion with shelter and public conveniences in the promenade bank at Westbrook.

### *Improvements at Rhyl.*

A Local Government Board inquiry has just been held into the application of the Rhyl Corporation to borrow £5,600 for constructing a new promenade below the sandhills, £300 for a new screen for the sewerage pumping station, and £480 for additional lavatories at the Marine Lake.

### *New Buildings for the Hearts of Oak Benefit Society.*

At a special meeting of delegates of the Hearts of Oak Benefit Society, it has been decided to sell to the London County Council the unoccupied site on the western side of their offices in Euston Road. It was also resolved to erect on the eastern vacant site additional office accommodation, at a cost of £28,478.

### *New Library for Manchester.*

With the sanction of the Local Government Board, it has been decided by the Manchester Corporation to pull down the branch library at the junction of Brooks Street and Butterworth Street, Bradford, and erect a new building at a cost of £5,000. This library will have seating accommodation for one hundred persons, and will hold ten thousand volumes on open shelves.

### *Enlargement of Hendon Parish Church.*

At a meeting of Hendon parishioners it has been decided to proceed with the enlargement of the Hendon Parish Church, in accordance with the design of Mr. Temple Moore. It is believed that the work can be executed for about £6,400. It is proposed to remove the galleries and the south chancel chapel, and to erect a new nave, south aisle, and vestries, the number of sittings being increased from 457 to 807.

### *New Baths, Paddington.*

Paddington Baths and Washhouses Committee have reported in favour of a scheme for acquiring, at a cost of £20,000, the site known as "The Lodge," in Porchester Road, on which to erect central swimming baths and a public hall, leaving washhouses and private baths to be provided in the Clarendon Street area and at Hall Park. It is suggested that the sum of £80,000 will cover the whole scheme.

### *New Colonial Offices.*

The Agent-General for British Columbia, the Hon. J. H. Turner, has received instructions from the Provincial Government to conclude the purchase of a site for the purpose of erecting new offices for the Provincial Agency in London, which is now located in Salisbury House, E.C. Negotiations have been proceeding for some time past with regard to the acquisition of a new site. The building to be erected will probably be four or five stories high. According to the Victoria "Daily Colonist," the architect will be Mr. Alfred

Burr, F.R.I.B.A., and the contractors will be Messrs. W. Cubitt and Co. A vote of £50,000 for the new building was included in the appropriations made by the Provincial Assembly during its last session, and it is hoped that it will be possible to begin active construction operations in the near future.

### *Newport Law Courts.*

The Newport Corporation Parliamentary Committee which is considering the question of providing new law courts, to include provision for the holding of the Monmouthshire Assizes and Quarter Sessions, instructed Mr. C. F. Ward, the Corporation architect, to prepare plans for extending the present town hall and the erection of new law courts on a site opposite the police-station in Dock Street. The site is the property of the Corporation.

### *Water Scheme for Taunton.*

The Taunton Town Council have for some time been faced with difficulty in dealing with the question of allowing the right of the Taunton Town Mills to a supply of water and at the same time preventing the flooding of part of the town. The council have now decided on a scheme prepared by Mr. W. T. Douglass. This scheme includes the construction of a new weir, 200 ft. long, with a culvert, foot-bridge, etc. The cost of the works will be £3,800.

### *A New Street Bridge, Birmingham.*

Following the example of the Birmingham Corporation, who, in order to connect the old and new portions of the Council House and Art Gallery, threw a bridge across Edmund Street, the Post Office is about to bridge Hill Street, Birmingham, in order to connect the present buildings with the extension which is being erected on the other side of that street. The first design was for a cast-iron bridge, but in deference to the opinion of the Public Works Committee of the Corporation this was withdrawn. It is now intended to construct the bridge of reinforced concrete. It will be about 70 ft. above the roadway, and will have a width of 28 ft.

### *Blackburn's Municipal Buildings.*

A Local Government Board inquiry was recently held at Blackburn concerning the application of the Corporation for sanction to borrow a further sum of £40,000 for the completion of the public halls on the Blakey Moor site and the alterations to the Town Hall. The Corporation have already been empowered to borrow £80,000 for this work, but the total cost of the scheme, as it now stands, will be £120,000. By the alterations to the Town Hall which are now in progress it is intended to bring all the Corporation offices under one roof. Since the first plans were prepared it has been found necessary to provide larger offices for the different staffs, owing to the increased duties which have devolved upon them in recent years, and the total cost of the structural alterations will be £40,000.

### *New Cottage Hospital, Marlow.*

A deadlock has arisen over the project to erect a new cottage hospital at Marlow in place of the present building, which is regarded as unsuitable and inadequate. The question has been under consideration for two years, and a scheme is now proposed involving an expenditure of £2,025, towards which £1,352 has been received or promised. The Charity Commissioners have intimated their readiness to sanction a loan up to £700 if it is repaid in thirty years. Mr. John Langley, of Marlow,



has offered a suitable site free of cost, and also to lend the loan on easy terms. At a public meeting recently Mr. R. C. Lehmann moved a resolution supporting the scheme of the Hospital Committee, subject to the approval of the Charity Commissioners, and pledging the meeting to assist in raising the necessary funds. Mr. Langley seconded the resolution, and after a discussion 43 voted for the scheme and 43 against. The vicar of Marlow, the Rev. J. H. Light, who is a trustee of the hospital, declined to give his casting vote.

#### *New Dublin Art Gallery.*

A special meeting of the Dublin Corporation has been held to consider a letter addressed to the Lord Mayor from the Mansion House Committee with reference to the provision of a permanent municipal art gallery in Dublin. Sir Hugh Lane has offered to the city a collection of pictures valued at £20,000, provided that a suitable gallery is erected in or near a busy thoroughfare in a central portion of the city. The Mansion House Committee was formed to solicit subscriptions from the public, and it has received over £9,000. In addition the Corporation has decided to raise a loan of £22,000 if the public provide the site and a sum of £3,000 to augment the building fund. The Committee reported that they had visited various suggested sites, and suggested the adoption of a bridge site across the River Liffey not far from O'Connell Bridge. The estimated cost of a platform across the river was only half the cost of any central land site. This suggestion was cordially approved by Sir Hugh Lane, because of the position of the site, its safety, and the fine scope which it offered architecturally. The resolution was passed by 28 votes to 5.

#### *L.G.B. Enquiries.*

The Local Government Board have recently held enquiries into proposed expenditure by public bodies as follows:—

Water Supply.—Alfreton Urban District Council, £1,500 (April 23rd).

Sewerage, Drainage, Sewage Disposal.—Rothwell Urban District Council, £9,000 (April 16th); Pateley Bridge Rural District Council, £1,132, and £2,168 for Dacre and Hartwith-with-Winsley (April 22nd); Wetherby Rural District Council, £4,500 for Weeton (April 23rd); Colchester Borough Council, £1,690, including £630 for travelling crane; Epping Rural District Council, £3,500 for Netswell; Hunsworth Urban District Council £3,350 (April 24th); Doncaster Rural District Council, £3,900 for Rossington; Middlesbrough Borough Council, £33,850 (April 25th).

Street Improvements, Public Walks, etc.—Finchley Urban District Council, £13,640 (April 17th); Melton Mowbray Urban District Council, £1,063; Bournemouth Borough Council, £1,500; Sunderland Borough Council, £4,500 (April 22nd).

Various.—Southampton, £2,700 for extension of Petersfield Isolation Hospital; Stockport Borough Council, £24,500 for electricity undertaking (April 16th); Melfham Urban District Council, £6,000 for housing (April 21st); Chester-le-Street Urban District Council, £29,500 for ditto (April 22nd); Liverpool Corporation, ditto, no amount stated (April 23rd); Marlborough Borough Council, £2,600, for ditto; Kingston-upon-Hull City Council, £5,450 for erection of stables, £9,405 for horses and plant, and £3,500 for boilers, superheaters, etc. (April 24th); Burnley Borough Council, £5,000 for gas undertaking (April 26th).

## BOOK NOTICES.

### *The English Fireplace.*

The history of the English fireplace is in a high degree interesting to the architect from more than one point of view, but chiefly, perhaps, because it has served to emphasize—and often to over-emphasize—the details which distinguish the secular phases of design. The normal architectural unit of the interior of a house is the room, and there is no feature which can challenge the claim of the fireplace to be the central, and often the principal, object within its walls. With the usual addition of an overmantel, it loses, to a large extent, its structural significance and becomes almost a fine piece of furniture, giving scope and opportunity to the architect's powers of composition in a way that is scarcely to be found elsewhere. In this *piece* or *tableau* he can set forth in bold relief a miniature scheme of architecture, a mimic façade illustrating the rules of his art. Thus it came about that the Tudor designers filled their friezes with traceried panels, shields, and all the devices of heraldry. The quick curiosity and unashamed enthusiasm of the Elizabethan artists for classical forms led to innumerable variations on the simple themes of the Orders. The successive changes in the artistic inspiration of the 17th century, too, were reflected in the fireplace and its overmantel, for men and women had a lively interest in the varying essays in architectural interpretation. Even so in the 18th century the chimneypiece still tells us what occupied the public mind, and at its close the brothers Adam showed their delicacy of treatment in nothing more admirably than in their fireplace designs. And so we proceed to the last phase when all general interest and intelligent appreciation of architecture had died, and when material comfort was alienated from beauty of form. Then the fireplace lost all its architectural character, and the delightful overmantels of the past gave place to mirrors, which might reflect indeed the poverty of imagination in the room itself.

Mr. Shuffrey's book, "The English Fireplace," provides a fine gallery of pictures of some of this good work. We miss among them many old friends, and we could have spared quite a number of the more unusual and less interesting types which are illustrated. There remains, however, enough material for a liberal education in the subject. Holbein's drawing, which forms the frontispiece, is especially worthy of admiration. The mediæval fireplace is fully treated, though, perhaps, from too "structural" a point of view, Tattershall Castle providing the most interesting examples of the 15th century. The classification of the Renaissance period is rather confusing, but we can pick out many superb designs amongst the earlier work and a large selection of the Jacobean masterpieces. The simple treatment of the Lime Street overmantels and that at "The Reindeer Inn" at Banbury show how charming the framework of these designs really is. The superb chimneypiece in the Star Chamber at the Royal Palace at Westminster, measured by Richardson, might be added to these. The series of designs by Inigo Jones at Wilton House, and a really splendid selection of the Adam period add considerably to the value of the book.

Mr. Shuffrey does not seem fully to have grasped the historical and architectural significance of his subject, and his obviously conscientious study of its details does not result in very clear exposition.

We are inclined to think that the central fireplace of the mediæval hall has not yet been investigated completely, and the quotation on page 71 from Carew's "Survey of Cornwall," regarding "hearths in the midst of the room for chimneys, which vented the smoake at a lower in the toppe," suggests elaborate hanging flues or canopies, the existence of which would disprove the idea that mediæval methods were always "primitive." Indeed more counts than one we might well add to the present age with the same adjective. Mr. Shuffrey is surely mistaken in referring the design of the Tudor fireplace at Ockwells (Plate xxv.) to 1673, for that date must have been carved on it subsequently, and we very much doubt that Evelyn's remarks on the Reigate chimney piece are sufficient foundation for referring so obviously a 17th century design to Henry VIII.'s work at Nonsuch. The stone opening might be of the earlier period, but Evelyn refers specially to one "carved in wood." The fireplace could not have been moved on the demolition of the palace, as surmised by Mr. Shuffrey for Evelyn visited Reigate in 1655, and Nonsuch was not destroyed until after the Restoration.

The book is a valuable addition to Mr. Batsford's series on different types of architectural detail, but if, as we hope, there are to be still further volumes, we would suggest that some curtailment of the wealth of illustration could be well afforded if the letterpress were improved and the general arrangement made more clear for the average reader.

"The English Fireplace," by L. A. Shuffrey. London: B. T. Batsford. Price £2 2s.

### *Colour Decoration.*

Lovers of the work of the great Italian masters will welcome Mr. Crace's book on the art of colour decoration, with its many beautiful plates illustrating the decorative art of the Renaissance and its adaptation to modern design. To architects, no less than to practical decorators, the book should prove extremely useful. It sets forth, in a readily comprehensible style, axiomatic principles that are often self-evident when pointed out, but which may elude the student who attacks the problem of design in colour with no other assistance than that afforded by a limited experience of existing works. Indeed, although too many examples of modern decoration fail for lack of attention to the simple rules here lucidly expressed.

The coloured plates, from originals by the author, sketched "at intervals during a period of forty-five years," are doubly excellent as reproductions of the character of the actual work, and as examples of the high state of perfection attainable with the three-colour process of printing.

Nothing short of a visit to Italy could give a better idea of the subject than these charming pictures, and even in Italy several of the paintings have fallen into decay, or worse still, have been "restored," so that the faithful diagrammatic illustrations have an additional value as historical documents.

The book deals fully with that difficult problem brought into prominence by the improved manner of naturalistic drawing of the Renaissance artists. How is the combination to be effected, of paintings including aerial perspective and light and shade with a decorative scheme of colour that shall recognise the structure of the building? Mr. Crace satisfactorily demonstrates that the artists whose genius raised the difficulty also put on record a highly satisfactory solution of it, and pro-



ed an example that modern decorators will afford to ignore. Architects will perhaps disagree with the w expressed that the graining of wood and marble is legitimate when successful and if necessary to complete the harmony of the colour scheme; the author, however, has a strong precedent to quote in the work of Raphael and other great men, and here the chief decoration of a building consists of naturalistic paintings, any means of bringing them into relation with the structure is entitled to careful consideration.

*The Art of Colour Decoration.* By J. P. Crace. London: B. T. Batsford. Price 30s. net.

*Spon's Practical Builders' Pocket-book.* In this annual is compressed, within a portable compass, a large number of useful memoranda, which are arranged in alphabetical order, a system which, while ideal, since it entails a certain amount of overlapping, with consequent cross-references—and when one is in a hurry it is rather annoying, on looking in one place to be referred to another—is, nevertheless, on the whole, very convenient. Useful tables, and seventy-four illustrations, are included.

*Spon's "Practical Builders' Pocket Book."* A Reference Book of Memoranda and Tables for Architects and Builders. Edited by Clyde Young, F.R.I.B.A., and Stanford M. Brooks, Licentiate R.I.B.A. London: E. & F. N. Spon, Ltd., 57, Haymarket. Pages vi. + 456, 6½ ins. by 3¾ ins.

#### *Secret Commissions.*

Is the Prevention of Corruption Act a bad letter? The paucity of convictions under it has led some people to suppose that the Act has failed of its purpose. It was not the purpose, however, of any Act of Parliament to secure convictions, but to prevent the practices which lead to them, and in this respect the Act appears to have been fairly successful. Sir Edward Fry, who supplies a short preface to a pamphlet entitled, "The War against Bribery," by R. M. Leonard, declares that he is convinced, from his own knowledge, that the Act has had a very beneficial effect. "It has awakened many sleeping consciences, it has alarmed many evil-doers, it has deterred many who would otherwise have committed such offences." To the builder and contractor, who must often be puzzled to know whether or which of the numerous commissions with which he is concerned is legitimate or otherwise, this pamphlet could prove specially serviceable in rendering first aid towards discrimination.

*The War Against Bribery.* By R. M. Leonard. London: The Secret Commissions and Bribery Prevention League, Incorporated, 3, Oxford Court, E.C. 4.

#### *Lockwood's Price Book.*

The price books have had to be modified considerably this year in accordance with a general rise in the rates of wages. Further increases in the prices of materials have also had to be recorded. Lead is continuously dearer as its uses extend, China and Japan now employing it very largely, while the electric lighting and other industries are largely increasing the demand for a metal of which no new sources of supply seem to be discoverable. Copper also is rather dearer, owing to increased cost of freightage, and also to increased building activity on the Continent. Recording these movements, the Editor of "Lockwood's Price Book for 1913," finds that nevertheless the cost of building in this country is not materially greater. "This," he finds, "is partly owing to im-

proved methods of production, but mainly to the keen competition for work and the consequent cutting of prices which is everywhere so prevalent." "Lockwood" is so well known that any description of it would be superfluous, and there is no necessity to say anything in its commendation further than that its voluminous and varied contents have been carefully brought up to date, with amplification where necessary.

*"Lockwood's Builders', Architects', Contractors', and Engineers' Price Book for 1913."* Edited by Francis T. W. Miller. Pages clxxii. + 268, 7½ ins. by 5¼ ins., price 4s. London: Crosby Lockwood & Son, 7, Stationers' Hall Court, E.C., and 5, Broadway, Westminster.

#### *Modern House Drainage.*

To a semi-scientific subject like sanitary engineering there are always two main approaches—that from the philosophic and that from the practical side. The manuals on such subjects can usually be classed accordingly. Mr. Gilbert Thomson's "Modern Sanitary Engineering" very definitely takes the character of a philosophic treatise, and, from the standpoint of the architect, civil engineer, and sanitarian, is none the worse for that; for the practical man is apt to lay too much stress on mere details of workmanship, whereas the philosophic view is more directly concerned with the elucidation of principles—the reason why certain things are to be done rather than with the precise and immediate means of doing them. The author's knowledge of the subject, however, is complete down to the minutest detail, and long experience as a lecturer on it in the Glasgow Technical College has given him very clear ideas as to the selection and presentation of matter. The architect wishing to acquire an all-round knowledge of sound principles and up-to-date practice in house sanitation without going into the minutiae of joint-wiping and other purely mechanical operations may profitably read this book.

*"Modern Sanitary Engineering."* Part I., House Drainage. By Gilbert Thomson, M.A., F.R.S.E., M.Inst.C.E. London: Constable & Co., Ltd., 10, Orange Street, W.C. Pages xvi. + 266, 8¾ ins. by 6 ins., price 6s. net.

#### *"How to Estimate."*

A fourth edition of Mr. Rea's excellent treatise on Estimating having been called for, the author has taken the opportunity not only of revising it throughout, but of making very considerable additions. Altogether there are forty extra analyses of prices and 360 additional illustrations. Of the latter, many, we think, could very well have been spared. Of many of the illustrations the utility is unquestionable. It is often advantageous to have at hand the means of illustrating some particular object, such as the shape of a moulding, or the way in which stone is to be faced, a drain is to be laid or a road is to be formed; but the illustration of an alleged door-frame, for instance, on p. 321, seems to be as superfluous as the asphalt block on p. 222 or the builder's cart on p. 163; and there are many others that seem to be altogether too trivial for inclusion in so admirable a book. Luckily, however, they do not take up very much space; the illustrations generally—the majority of them useful enough—being reproduced to about the usual scale of marginal sketches, and many of them serving admirably as copies for that purpose. The aim of the author, in planning the treatise, was to set forth the scientific methods which underlie the formulating of a true estimate; and the measure of

his success in elucidating principles is indicated by the demand for a fourth edition. As the undercutting which is notoriously rife in the building trade is often based upon ignorance of such details as are here carefully assembled and analysed, Mr. Rea's book should therefore have considerable influence on the moral as well as on the material aspects of estimating.

*"How to Estimate."* Being the Analysis of Builders' Prices. Giving full details of estimating for every class of building work, with thousands of prices and much useful memoranda. By John T. Rea, Architect and Surveyor. Fourth edition, revised and enlarged. With over 400 illustrations. Pages xiv. + 544, 8¾ ins. by 5¾ ins., price 7s. 6d. net. London: B. T. Batsford, 94, High Holborn, W.C.

#### *Cement Specification.*

A book assembling in logical order and stating in concise language the results gathered from wide experience and careful observation of the employment of cement should be of signal service to all who are responsible for the economical use of that material. Mr. Jerome Cochrane has provided such a book, and although it is apparently of American origin, it is for that very reason the more valuable in some respects by its broadening of the field.

*"A Treatise on Cement Specifications, including the general use, purchase, storage, inspection, and test requirements of Portland, Natural, Puzzolan (Slag), and Silica (Sand) Cement, and methods of testing and analysis of Portland Cement."* By Jerome Cochrane, B.S., M.C.E. London: Constable & Co., Ltd. Pages xii. + 102, 8¾ in. by 5¾ in., price 6s. net.

#### THE LONDON ATELIER.

A new prospectus has been issued in connection with the first architectural atelier to be established in London, at 16, Wells Mews, W. It states that "the Patrons, Mr. Charles Mewès, Mr. Arthur Davis, and Mr. J. P. C. Chaurès, are all Beaux-Arts men, but no attempt is made to introduce French designs or details. On the contrary, the student is encouraged to develop his own ideas with the help and co-operation of the patrons and atelier comrades, who assist him to lift his work to the highest possible level. A band of enthusiastic students have created a fine spirit of camaraderie, and have assimilated this most essential feature of a Paris atelier. The atelier is always open, and its internal control is in the hands of the Students' Committee, consisting of Messrs. Adrian Berrington, L. E. Carreras, W. G. Newton, A.R.I.B.A., L. S. Sylvester Sullivan, A.R.I.B.A., C. Spencer Willmott (librarian), and L. H. Bucknell, A.R.I.B.A. (massier). The entrance fee for students is one guinea, and a monthly subscription of 30s. is payable when taking part in a competition. A number of prominent men having expressed a wish to support actively the atelier, all those in sympathy with its aims are invited to become members at a yearly subscription of one guinea. Such members will be entitled to join in all social functions and to keep in touch with the ideas, methods, and progress of the movement, while professional members will be eligible to take part in certain of the 12-hour competitions.

The Paris member, Mr. H. Bartle Cox, A.R.I.B.A. (Atelier Laloux), of 31, Avenue du Maine, Paris, will be pleased to give information relative to the Ecole des Beaux-Arts to any English Students in Paris, or to any Paris Students who wish for particulars of the London atelier. Communications should be addressed to the hon. secretary, at the Atelier, 16, Wells Mews, Wells Street, Oxford Street, W.



## IN PARLIAMENT.

(By Our Press Gallery Representative.)

*Public Works.*

The recent discussion in the House of Commons on the estimates for public works, etc., ranged over a large field.

The removal of the grille in front of the Ladies' Gallery in the Chamber was once more suggested, but Mr. Wedgwood Benn said it was an architectural feature of the House and he thought the majority of ladies would prefer it to remain.

Ventilation was another subject, and Mr. Wedgwood Benn, while expressing inability to please everybody in the matter, said that the First Commissioner would have no objection to the appointment of another Committee on the subject if members desired it. He mentioned that the temperature of the House was about 62 degrees Fahr. and if it were raised, as had been suggested, it would be too hot to endure.

Mr. King raised the question of Rodin's bronze group, "The Burghers of Calais," and wanted to know when it would be erected, but no information was given.

One item of the Votes which was commented upon showed that the internal and external repairs and miscellaneous charges for the buildings of the Houses of Parliament would cost during the year £10,800.

Mr. Lyell called attention to the modern statues which debased the appearance of Westminster Hall and the chandeliers in the Hall, which, he said, were out of keeping with the place. He wished to see a reproduction of the mediæval lighting effects by the aid of electric lamps.

Mr. Wedgwood Benn agreed as to the incongruity of the statues in Westminster Hall. They were not intended to be placed there, but it was now very hard to know where to place them. In reply to some further questions regarding the fence around the Queen Victoria Memorial, he said it was necessary to keep the people from the steps of the memorial during prohibited hours. Sir Thomas Brock had designed movable bronze posts, and as soon as they were complete they would be placed in position to take the place of the present rather unsightly wooden fence.

Lord A. Thynne put in a plea for grouping Government offices in provincial towns in one building in the interests of convenience, economy, and architectural effect.

Mr. King raised an objection to the erection of corrugated iron buildings in the vicinity of the South Kensington Museum, which was immediately explained by Mr. Wedgwood Benn as being necessary to avoid the danger of fire.

Some discussion followed upon consular and diplomatic buildings abroad, some of which Sir John Rees declared were adequate, while others were not worthy of the British Empire.

Complaint was made in regard to the delay in building a new Post Office at Bolton, and in extending the Glasgow Post Office. Mr. Wedgwood Benn stated that the delay at Glasgow was due partly to a labour dispute and partly to the necessity of going carefully with the reinforced concrete of which the post office extension was being erected. At Bolton the delay was due to the alteration of plans and revised estimates.

Labour exchanges and insurance buildings gave rise to some discussion, in which several members objected to the large outlay for buildings.

Lord A. Thynne expressed a hope that before any decision was taken with regard

to the treatment of the approach to the Admiralty Arch the precedent established in the case of the Regent Street Quadrant would be followed, and an expert Committee appointed to advise with regard to the alternative plans. The precedent was an exceptionally happy one, inasmuch as the Committee not only made a recommendation which had commanded the support of the whole of the architectural opinion of this country, but paid due regard to the business interests involved.

Mr. Wedgwood Benn said the Office of Works welcomed the suggestion of the noble lord, and the Government would welcome the appointment of such a Committee by the Office of Works to decide what should be done, irrespective of who should do the work.

Mr. Hogge suggested that the Government should consider the advisability of selecting an alternative site to that of the Calton Prison for the new Government buildings in Edinburgh.

Mr. Wedgwood Benn said the Office of Works was preparing conditions of competition, and it was not proposed to vary the site.

Mr. Goldsmith raised a point about architectural work being done by the Office of Works without competition. In the five years ending March, 1912, the expenditure on new works executed to designs prepared in the Office of Works amounted to over £4,000,000, and the payment for salaries in the same period to £464,000. These figures showed that the subject was not small or unimportant. They ought to consider whether they got the best buildings, from an architectural point of view, under the present system, and whether it was more economical to have all the work done by official architects than to resort to open competition. The Royal Institute of British Architects had recently been considering the whole question, and the president, in his opening address, speaking of the work of the Office of Works, said: "The architectural work done by the Office of Works is of a very varied nature, but unfortunately very uniform in its architectural character. I want to be strictly fair in what I say, but I think the whole of the work done by the Office of Works is poor from an architectural standpoint." He maintained that if the work produced by the Office of Works was not very good or very cheap, the bulk of it might with advantage be put out to independent architects. Everyone would agree that they were very likely to get first-class buildings by asking eminent architects all over the country to compete. However good and efficient the official architect might be, he could not possibly on all occasions produce the best and the most useful buildings. They only got that by open competition. He saw no reason why the official architect should not send in his design with those of other competitors, and if an impartial tribunal should decide that the official design was the best, then let it be adopted. The State ought to encourage the architectural profession, and that could only be done by giving private architects a chance and by having open competitions for all important Government buildings.

Unfortunately the time left for reply was too brief to allow Mr. Wedgwood Benn to reply to Mr. Goldsmith's argument.

*Accidents in the Cement Trade.*

Mr. McKenna informed Mr. W. Thorne that the number of reported accidents in the cement trade on the Thames and Medway had risen from 337 in 1911 to 382 in 1912, but there was a considerable increase

in trade activity in 1912, involving the employment of a larger number of workmen as compared with the previous year.

*The New Delhi.*

In the House of Commons, Mr. King asked the Under Secretary of State for India whether Mr. H. V. Lanchester went out to Delhi to report on the lay-out and town-planning of the new city at the request of the Viceroy or of the Secretary of State; whether Mr. Lanchester's report would be made known by a copy being placed in the Library; and whether the plan for the lay-out of the new city would be exhibited before, simultaneously with, or after the exhibition of Mr. Lutyens' plans.

Mr. Montagu, Under Secretary for India, said Mr. Lanchester went to Delhi at the request of the Viceroy, conveyed to him by the Secretary of State. There was no report such as Mr. King referred to, and Mr. Lanchester's memoranda were not in a form or of a nature for presentation to Parliament, nor did he think the relevant to the consideration of the plan prepared by the town-planning committee.

Mr. King asked if it was not the case that Mr. Lanchester gave a full plan of the lay-out which he proposed for the new city.

Mr. Montagu replied that Mr. Lanchester made several communications to the Viceroy and the Government of India, but not in such a form that they could very well be submitted to Parliament. The Town-Planning Committee's report and plan were now being prepared for presentation to Parliament immediately.

Mr. King asked whether Mr. Lanchester's memoranda were shown to the Town-Planning Committee.

Mr. Montagu said he did not know, but all the time the Town-Planning Committee were conducting their investigations in India the views of Mr. Lanchester were well known to them, and were discussed by them.

Mr. Alden asked the Under Secretary of State for India whether the Government of India had now definitely decided on the southern site for the new capital Delhi; whether he could state the extra cost likely to be incurred by the choice of the northern site; and whether he had official information showing which site would be the more advantageous from the sanitary and health point of view.

Mr. Montagu said the reply to the first question was in the affirmative. The Secretary of State could not answer the second part of the question, but the additional cost of Government headquarters on the same scale would be undoubted heavy. With regard to the third part of the question, the southern site was overwhelmingly more advantageous from the health point of view.

In the House of Commons Mr. King asked whether one of the selected architects for the new Delhi carried on his profession with offices in Johannesburg and the other with offices in London; whether any conditions had been imposed on either or both of those gentlemen that they should give up their private practice or spend a definite portion of each year in India; and if not, what security would be given that the work in India would receive the necessary personal supervision.

Mr. Montagu replied that the honourable member might rest assured that the agreement to be made with the two architects would guard against the apprehensions upon which his question was based.



## LEGAL.

*Architect's Fees Where Work is not Carried Out.*

In the King's Bench Division, before Mr. Justice Bailhache, Mr. Cecil Masey, architect, claimed from five defendants fees for professional services rendered in the preparation of plans for a proposed music-hall for Penge. Three of the defendants were dismissed from the case, as not being jointly liable with the other two, with regard to whom the question of liability turned on whether or not the architect was to receive fees if the scheme fell through. The architect, in cross-examination, declared emphatically that he understood, from the outset, that he was to receive remuneration in any event for the work he did in connection with the scheme. The defence was that it had been expressly agreed that the architect should only be paid if the scheme was carried out. The judge said that he must, with some reluctance, give judgment for the defendants, with costs.

*A Question of Extras.*

In the King's Bench Division, on April 17th, Mr. Justice Channell heard an action in which Messrs. Henry Willcock and Co., of Burton-on-Trent, sued the executors of the late Lord Burton for the recovery of £3,795, alleged to be due on a contract for building a church, of which, on the death of Mr. Bodley, Mr. Hare was appointed architect. On the completion of the church, in 1910, the deviations or extras were measured up by a valuer appointed by the defendants, who, however, then claimed the right to employ an engineer to go into the question of extras. Plaintiffs objected to this course, and contended that the defendants were bound by the valuation. In July, 1912, the architect issued his certificate for the amount due.—Counsel for the defendants said that they disputed the amount due, as they had already paid about £22,500, which included some £3,000 or extras, and they desired to reopen the whole matter, contending that nothing further was due to the plaintiffs, and that the defendants had the right to go to arbitration.—Mr. Justice Channell held that the defendants had the right to proceed to arbitration, whereupon Mr. A. A. Hudson, S.C., counsel for the plaintiffs, said that he was willing to adopt this course.

*Liability for Loss of Insurance Cards.*

In the King's Bench Divisional Court, on April 22nd, Justices Ridley, Pickford, and Avory delivered a considered judgment in a case arising out of the loss of insurance cards in the post. As recorded on page 190 of our issue of February 10th, a builder's labourer sued his employer for costs for stamps, £2 12s. for loss of two weeks' wages incurred through inability to obtain employment because the cards could not be produced, and £2 loss of health-insurance benefit—total, £5 2s. The alderman at the London Guildhall before whom the case was tried awarded the plaintiff one week's wages and the cost of the summons, holding, in effect, that an employer was responsible for insurance cards until he could prove their delivery into the workman's hands.—Against this decision the employer now appealed.—Mr. Justice Ridley said that the workman could have obtained emergency cards, and that therefore he should not have been awarded damages for unemployment.—Mr. Justice Pickford agreed, and both judges decided to allow the appeal on these grounds. Mr. Justice Avory made the important addendum that the Post Office was the agent of

the Insurance Commissioners, who were the owners of the cards, and that therefore the loss was due to these agents, and the employer was not liable. [The appellant was Mr. C. R. Price, builder, Bishopsgate, and defendant a scaffolder named Webb.]

*Liability for Drainage Reconstruction.*

In the King's Bench Division, Mr. Justice Channell and Mr. Justice Coleridge heard the case of *Howe v. Bolwood*, which was an appeal by the plaintiff from the decision of the judge of the Ipswich County Court. The action was brought by the plaintiff, who was the landlord of a house let to the defendant, to recover the sum of £23, the cost of certain work which he had had to do in reconstructing the drainage of the premises in question. By the terms of the lease the tenant covenanted that he would "pay and discharge all rates, taxes, assessments, charges, and outgoings whatsoever," etc. The landlord covenanted that he would "keep the exterior of the said dwelling-house and buildings in repair." During the tenancy the local authority required certain work to be done in connection with the outside drainage of the house, and eventually an order of the justices was made calling upon the landlord to do the work in question. The work involved a certain amount of reconstruction and improvement of the existing system, as well as repair. The plaintiff paid for the work done, admitting his liability for that portion which was strictly repairs, but in respect of that portion of it which related to reconstruction and improvement he claimed to be recouped by the defendant on the ground that such expense was an "outgoing imposed or charged on the premises" within the meaning of his covenant in the lease. The County Court judge held that the defendant was not liable, and the plaintiff, as stated, appealed. Mr. Henlé, for the plaintiff, contended that the decision of the judge was wrong. He also submitted that the landlord's covenant to repair did not involve any liability to work which amounted to reconstruction. Mr. C. E. Jones, for the defendant, submitted that the case of *Stockdale v. Ascherberg* was distinguishable. There was no covenant by the landlord in that instance to do any repairs at all. In the present case the landlord was bound to execute exterior repairs, and the fact that the performance of his covenant involved work in the nature of improvement and reconstruction did not excuse its fulfilment.

Mr. Justice Channell, in the course of his judgment, said that no one would question that the drains were a part of the building and an outside part of it. The drains, in fact, were out of repair. The landlord set to work to repair them, and then found that the law would not allow him to put them into repair unless he executed certain work which was in the nature of improvements on the existing system. The consequence seemed to be that the landlord was not entitled to perform his covenant without doing something which was in the nature of improvement. In his opinion the tenant's covenant must be read as meaning that he should discharge all outgoings, except such as were by the lease thrown upon the landlord. If they were justified in so reading it, then where there was no such covenant as that entered into by the landlord in the present case, they were justified in saying that this particular expense was left upon the shoulders of the landlord. That being so, the decision of the County Court judge was right, and the appeal must be dismissed.

Mr. Justice Coleridge agreed that the appeal failed.

## NEW BUILDINGS IN EDINBURGH.

(From an Edinburgh Correspondent.)

Several important building schemes are in hand or under planning in Edinburgh at present. New work to be begun includes extensions at the Heriot-Watt College. A new wing will cost £12,000, and extensions in other ways are contemplated. The new Royal Veterinary College, the plans for which have been prepared by Mr. David McCarthy, L.R.I.B.A., Edinburgh, is estimated at an outlay of £50,000, and will cover 1½ acres with a frontage of 250 ft. and a depth of 280 ft. A new school in the St. Leonard's district will be begun early, the expenditure being about £13,000. The site occupies a commanding position at the top of St. Leonard's Lane, on a crag which overlooks the King's Park. For the Children's Home at Craigleith, Mr. R. M. Cameron has designed a two-storey harled brick building, with accommodation for about 120 children.

Most important of all is the new Government scheme for the Calton. Architects will be invited by public announcement to submit designs. The intention is to remove the present buildings of the Calton Prison—a splendid prominent site—and build central offices for all the Government Departments which have their head offices for Scotland, in Edinburgh. An artistic as well as very commodious pile of buildings is essential.

Progress is being made with the public hall for Edinburgh—the Usher Hall. The immense dome roof is being completed, and is entirely of steel construction, with an outer covering of wood cased with copper. The weight of the dome roof is about 300 tons. The final feature of the roof, in place of an ornamental finial as originally designed, will be the corona of the dome, 44 ft. in diameter, with moulded walls 12 ft. high. In the hall the grand circle and gallery are carried on the cantilever principle, and it is stated that the projection of the girders carrying the grand circle seats is an inch or two more than has yet been done in any other hall.

## SOCIETY OF ARCHITECTS' ANNUAL DINNER.

The twenty-ninth annual dinner of the Society of Architects was held at the Trocadero Restaurant on Tuesday, April 22nd, Mr. Percy B. Tubbs, President, occupying the chair. Among the guests were His Honour Judge Rentoul, Mr. L. A. Atherley Jones, K.C., M.P., Mr. A. A. Hudson, K.C., Mr. W. E. Riley, Mr. George Hubbard, Mr. H. V. Lanchester, Mr. A. R. Jemmett, Mr. Herbert W. Wills, Mr. C. FitzRoy Doll, Mr. Brook T. Kitchin, Mr. H. Greville Montgomery, Mr. George E. Bond, J.P., Mr. William Woodward, Mr. Ernest J. Brown, and many others.

Mr. George E. Bond, proposing the toast of "The Houses of Parliament," described the objects of the Registration Bill promoted by the Society, and urged that pressure be brought to bear on private members of Parliament in order to secure its passage through the Commons.

Mr. L. A. Atherley Jones, in reply, said he saw very little prospect at the present time of the measure being passed into law. So long as Parliament was under the control of two rival hierarchies, so long would those measures of a conspicuous character monopolise the time available. He advised them, however, to continue their agitation; if only sufficient pressure could be put upon private members from without he



doubted not that the Bill would be passed in a very short time.

His Honour Judge Rentoul then proposed the toast of "The Society of Architects," to which

The President replied, observing that during the last few years a very remarkable change had come over the attitude of the R.I.B.A., which, as a body, was now pledged to a policy of Registration. He understood that the Institute had practically concluded the drafting of a Bill, and he sincerely hoped that it would recognise the principles which the Society had maintained for so many years, viz., that any Registration Bill must protect all vested interests and provide for the registration of all bona-fide architects at the time of the passing of the Act, and subsequently of such persons only as became qualified to register by passing the necessary examinations. He trusted that the R.I.B.A. Bill would be of such a character that the Society could give it hearty support, so that a Bill could be presented to Parliament which would be acceptable to the whole profession. In the meanwhile, a short circular was being put into the hands of the members of both Houses of Parliament, setting forth the aims and objects of the Bill and pointing out that it was in the best interests of the public that they should be able to distinguish between the qualified and the unqualified architect. Personally, he doubted if there was one member of Parliament in fifty who knew that anyone could now put up a brass plate and call himself an architect; yet this was constantly being done by men without any qualification, and there was no one to interfere. He said most emphatically that this was a condition of affairs that had no right to exist in any honourable profession; and it was obviously a condition that must be altered as soon as possible. The President concluded his speech with a description of the work carried on at the first Atelier of Architecture, recently established in London by the efforts of the Society of Architects.

Mr. E. C. P. Monson then proposed the toast of "The Guests," which was responded to by Mr. Philip E. Pilditch (vice-chairman of the L.C.C.), and by Mr. George Hubbard.

## NEWS ITEMS.

### *A New Church.*

The Church of St. Peter, Harrow, has just been built at a cost of £10,200. Mr. G. H. Fellowes Prynne, F.R.I.B.A., was the architect.

### *School at Loose, Near Maidstone.*

We are asked to mention that in the terraces of this school, of which an account was given on page 203 of our issue for April 16th, Ceresit was used for waterproofing.

### *The Admiralty Pier, Dover.*

The final stone of the Admiralty Pier widening works, which have been carried out during three and a half years by Messrs. Pearson, at a cost of about £400,000, has been laid. The new marine station is to be built on this site.

### *A New Reinforced Concrete Reservoir.*

The Rural District Council of Sedgfield, Durham, have accepted the tender of Mr. J. W. White, of Sunderland, for the construction of the new water reservoir in accordance with the plans of Messrs. Paul Piketty and Co., reinforced concrete engineers, London, W.C.

### *New Central Library, Deptford.*

This building is now being erected in Lewisham High Road from designs by Sir A. Brumwell Thomas, F.R.I.B.A. It is estimated to cost £12,000.

### *The Château de Chenonceaux.*

The Château de Chenonceaux, a notable sixteenth-century mansion in Touraine, was put up for sale on April 5th, when it was sold to M. Henri Menier, of the chocolate manufacturing firm. M. Menier intends to use the château as a residence, and will carry out important repairs and restoration work.

### *New Borough Architect for Swansea.*

For the position of borough architect for Swansea, which carries the salary of £500 a year, three candidates were selected to appear before the council, and in the final ballot the votes were in favour of Mr. Ernest E. Morgan, A.R.I.B.A., of Swansea, who secured the appointment by 21 votes to 14.

### *"The Gateway of India."*

The foundation-stone of the noteworthy building in Bombay which is to mark the spot where King George landed on Indian soil on his way to the Delhi Durbar, has been laid by the Governor, Lord Sydenham. The structure, of white marble, will cost about £60,000.

### *Newmarket's King Edward Memorial.*

Viscount Villiers, Senior Steward of the Jockey Club, has laid the foundation stone of the King Edward VII. Memorial Hall at Newmarket, which has been designed by Mr. A. J. Manning, M.A., of Newmarket. The contract is in the hands of Mr. H. J. Linzell, of Newmarket and Felixstowe.

### *London's Latest Theatre.*

The Ambassadors' Theatre, the latest addition to London's places of entertainment, is rapidly approaching completion, from designs by Mr. W. G. R. Sprague. The building is close to Cambridge Circus. It is a two-tier house with accommodation in all for about 500 people.

### *Government Telephone Factory.*

A start has been made with the new Government factory for producing telephone apparatus at Bordesley Green, Birmingham. The new buildings will be erected adjoining the existing postal telegraph stores in Fordrough Lane, and will be just outside the East Birmingham town-planning area.

### *Leeds School of Art Decorate a Church.*

A scheme of decoration which has been for some time in progress in the mission church at Rodley, Herts, is being carried out by the Leeds School of Art. Stencil decorations have been applied to the chancel, in a little baptistry oak panelling has been inserted, instead of the "grained" imitation in other parts of the church, an oak rood-beam, of simple and solid appearance, has been placed at the entrance to the chancel, a lectern of oak and wrought iron has been inserted, and a pulpit, severe and simple in character, has been placed in position.

### *Changes of Address.*

Mr. Herbert A. Welch, A.R.I.B.A., has removed his offices from No. 8, New Court, to No. 7, New Square, Lincoln's Inn, W.C.; telephone, Holborn 6453.

Mr. Harry E. King has removed his office to 3, New Court, Lincoln's Inn; telephone, Holborn 6588. The business of Messrs. Fleetwood and Eversden, quantity surveyors, having been taken over by

Mr. King, the style of the firm in future will be "Fleetwood, Eversden, and King."

### *New Companies.*

A company with the title of "Ferro Slates, Ltd." has recently been registered to carry on the business of manufacturer of reinforced slabs and slates, contractor for brick, tile, slate, partition and tile work, etc. The first directors are J. Sperti and D. S. Bond. Registered office: 14, Sicilian House, Sicilian Avenue, London, W.C.

A new company formed for the purpose of working the granite quarries on Ailsa Craig are to install on the island a considerable amount of new machinery for making granite setts and crushing the stone. It is also understood that the company are to acquire ground at Girvan for the establishment of stone-dressing works and that they will ship their "finished materials," or the proportion which they will despatch by sea, from Girvan Harbour.

## LIST OF COMPETITIONS OPEN.

MAY 31.—LAY-OUT OF PARK, BACUP.—The Corporation invite designs for laying out the Moorlands and Stubbylee Estate as a public park. Premiums £40, £20 and four of £10. Summary of conditions in our issue for April 16th.

MAY 31.—"IDEAL HOMES" EXHIBITION.—COTTAGES AND BUNGALOWS.—Designs are invited for (1) A workman's detached cottage; (2) a pair of workmen's semi-detached cottages; and (3) a bungalow for four single persons. The prize of £50 will be given in each case. Assessor, Mr. Leonard Stokes, F.R.I.B.A. Summary of conditions in our issue for February 12th.

JUNE 2.—STREET IMPROVEMENT SCHEME, BLACKBURN.—The Corporation invite designs for street improvement scheme for Blackburn. Premiums £100, £50, and £25. Assessor, Professor Adhead, F.R.I.B.A. Conditions (of which a summary is given in this issue) from Town Clerk, Municipal Offices, Blackburn.

JUNE 7.—HOSTEL FOR MALE STUDENTS, EXETER.—Mr. Edwin Cooper, F.R.I.B.A., is assessor. Particulars (one guinea, returnable), H. Lloyd Parry, Town Clerk, Exeter. Summary in our issue for April 2nd, and plan of site in the issue for April 9th.

JUNE 14.—BATHS, NEWCASTLE.—The Corporation invite designs for baths at Benwell, Walker, and Heaton. Assessor, Mr. Herbert W. Wills, F.R.I.B.A. Conditions, with site plans, obtainable (postage order 1s.) from A. W. Oliver, Town Hall, Newcastle-on-Tyne. Summary in this issue.

JUNE 14.—MUNICIPAL BUILDINGS, DEVONPORT.—The Corporation invite designs for municipal buildings and a guild hall. Premiums £350, £150, and £100. Assessor, Mr. Ernest Newton, A.R.A. F.R.I.B.A. Conditions (£2 2s., returnable) from R. J. Fittall, Town Clerk, Municipal Offices, Devonport, to whom designs are to be sent. Summary and plan of site in our issue for March 12th.

JUNE 19.—LAYING OUT ESTATE, NEWCASTLE.—Corporation invite designs for laying out a portion of their Walker Estate. Premiums £50, £30, £20. Particulars (one guinea, returnable), A. W. Oliver, Town Clerk, Newcastle-on-Tyne. Summary in our issue for April 16th.

JULY 1.—ROYAL PALACE AND LAW COURTS, SOFIA.—Particulars of this competition are obtainable from the Commercial Intelligence Department, Board of Trade, Basinghall Street, E.C.



# THE ARCHITECTS' & BUILDERS' JOURNAL.

Wednesday, May 7, 1913.

Volume XXXVII. No. 956.

No. 32.



(From Piranesi.)



*Photo : L. A. V. Cashmore.*

BUSINESS PREMISES, HANOVER SQUARE AND HANOVER STREET, LONDON, W.

JOHN BELCHER, R.A., AND J. J. JOASS, F.R.I.B.A., ARCHITECTS.

*(See page 490.)*



# THE ARCHITECTS' & BUILDERS' JOURNAL.

MAY 7, 1913.

CAXTON HOUSE, WESTMINSTER.

VOLUME 37. No. 956.

## Architecture at the Royal Academy.

ANY attempt to appreciate the works in the Architectural Room at the Royal Academy almost unconsciously leads one to question the attitude of the Academy towards Architecture generally. From its inception there has always been a preponderating number of painters amongst its members, with the not unnatural result that the sister arts of Architecture and Sculpture have received neither the recognition nor the consideration that they were and are entitled to from any society purporting to represent the three Arts.

Of late years the claims of Sculpture have been more fairly met, but the same cannot be said of Architecture. The "Mother of the Arts" is treated as a poor relation, to be kept in a back room while her more fashionable daughters entertain their guests in the State apartments!

It must be admitted that in its glorification of painting the Academy, to a certain extent, is representative of popular opinion, but that opinion is rapidly changing, and there is at the present time a growing interest in all questions which relate to the beauty and amenities, not only of our private dwellings, but of our towns and cities; and architecture presents a claim which, if it had been more generously acknowledged by those in authority at Burlington House, would have done much to improve not only architecture, but all the arts.

In a healthy artistic state the arts cannot be separated. If one is neglected the others will suffer. If there is a real desire for beauty, that desire will be general, and it is impossible to imagine a people that will suffer mean and squalid towns, ugly houses, and worse furniture, as possessing any true enthusiasm for either painting or sculpture; and one might add that under such conditions the finest works of painting and sculpture cannot be produced.

The buildings and monuments of a great city, for good or evil, exercise a direct, though perhaps unconsciously felt, influence on countless millions who may never have the chance of seeing a popular picture, and who are alike ignorant of the beauty to be seen on the walls of the Academy or at the New English Art Club.

Fortunately it is always possible to escape from a bad piece of painting, but it is not so easy to avoid a bad building. In London we are met at every turn by hideous and ill-considered façades which would disgrace a third-rate manufacturing town of the worst Philistine period, and by statues and monuments the very sight of which is sufficient to reduce one to the last extremity.

Now this neglect of architecture is bad not only for the art of building, but equally so for the other arts—bad for painting, and bad for sculpture, and any artistic revival which is to be of any permanence must have for its first object the awakening of public interest to the appearance of our streets and cities.

Granted, then, a nation that is capable of appreciating and alive to the necessity of art in its corporate existence, and it will not be long before the individual citizen will demand a corresponding beauty for his

private enjoyment, a need which, in its highest sense, painting, and painting alone, can satisfy.

Is it possible to contend that in the present exhibition there are so many canvases so deserving of a place on the walls, and of so high a value, that none could be spared to give additional room for architectural exhibits? In their place one would like to see more models, more schemes for civic improvement, examples of students' work, photographs of completed buildings—in fact, anything and everything (which at present, owing to insufficient space, cannot be shown) that would help to stimulate and direct the popular imagination.

When we come to examine the individual exhibits the influence of the painters is clearly seen. Exhibitors and would-be exhibitors know only too well that the rendering of a drawing carries far greater weight with the hanging committee than does the most carefully considered piece of design, and it must always be remembered that the Architectural Room is only representative, the real works being the actual buildings. Of late years more and more importance has been given to the preparation of these drawings, with the result that probably we have now a group of draughtsmen more expert in the rendering of perspectives than any other country can show.

The drawings of Mr. Walcot are of a standard so high as to compare not only favourably with, but even to eclipse at times, the acknowledged masterpieces of Piranesi and Canaletto. There is very little in the water-colour section that can in any way approach either in technique or imagination the work of this gifted artist. Other notable examples of draughtsmanship are drawings by Mr. Rickards, Mr. Horsnell, and Mr. Gascoyne.

Probably the design that will attract most attention this year is Sir Aston Webb's new front for Buckingham Palace, which is presented in a finely rendered drawing by Mr. Gascoyne. It is not the most enviable duty for an architect to be called upon to replace a well-known building which, whatever its faults, has gathered round it so many associations that its passing away is felt almost as a personal loss. This is particularly true of the principal Royal residence in London. Londoners are a conservative race, and, however much Blore's work falls short of the ideal, it has for so many years served them as the representation of the King's Palace that they have come to regard it with a kind of affectionate toleration, notwithstanding the many layers of dirt that have been allowed to accumulate; and any building which is to take its place will have to go through a fierce fire of criticism.

Sir Aston has produced a dignified, if not a particularly inspired, piece of architecture, somewhat marred by the unduly heavy blocks of masonry over the three pediments, which give rather a harsh official appearance, better suited to the offices of some municipality rather than the King's house, which should be the embodiment of Royal graciousness.

It is open to question whether those in authority would not have been better advised to spend a little more money in the upkeep of the present building, and



to have employed Sir Aston Webb's talents in the design of an entirely new Palace elsewhere. An old friend with a clean face is very desirable, but one with an entirely new face is apt to be a little bewildering. With all its faults, Blore's design looks like a Royal Palace, and with all its merits Sir Aston Webb's design does not.

Mr. John J. Burnet has also been concerned with improvements to another of the Royal Palaces, and is represented by a drawing and model of the competitive design for the Scottish national memorial to H.M. the late King Edward VII. at Holyrood Palace, Edinburgh. As seen in the model, this is a well-designed arch of pleasing proportions, with well-considered detail, but above the crowning parapet Mr. Burnet fails as badly, if not worse, than Sir Aston Webb! The spectator's first impression is that the equestrian statue, with its very substantial base and the two flanking figures, has been put on to the roof because the table supporting the model is not sufficiently large to accommodate it elsewhere, but a closer inspection reveals that it has been carefully fixed thereto, and on reference to the perspective sketch, which shows the arch in relation to the Palace, one realises that this is its determined position!

The effect of the heavy base carried on what is apparently a lead-flat, the lightness of which is emphasised by the wide spacing of the balusters which surround it, is most unhappy, and we know of no arch, ancient or modern, which can serve as a precedent to justify such a treatment. If the equestrian statue had been put at one end of the open place in front of the Palace, and the arch left to serve as an entrance only, a more suitable and convincing effect would have been attained.

Mr. Burnet also shows a design for a new building at the corner of Russell Square. This is a simple treatment of brick and stone, in which the architectural character of the neighbourhood is reflected.

South Africa and Canada are well represented by the works of Mr. Herbert Baker and Messrs. Darling and Pearson respectively. Mr. Baker shows two views of the Union Buildings, Pretoria, a fine and poetic composition, well worthy of the part the new building will play in the future of United South Africa. The same architect's design for the Rhodes Memorial is one of the most interesting pieces of pure design in the room. It is shown in a magnificent drawing by Mr. Walcot, who does full justice to his subject. There is, however, nothing to indicate the use of the flight of steps, with the building at the top. Does this building enshrine a statue of the great South African, or is it merely a piece of scene painting, the memorial proper being at the foot of the stairs? A small key plan would have been interesting and explanatory.

Messrs. Darling and Pearson's designs of offices for an insurance company and a bank show an appreciation for good scale and simple massing, but the detail is somewhat commonplace.

There are several drawings showing designs submitted in competition for the Port of London's new offices. Amongst the most interesting of these are those by Messrs. Lanchester and Rickards and Mr. Robert Atkinson respectively. Both are shown in finely rendered drawings, and both are rather mercilessly skied. We should have liked to see Mr. Cooper's winning design on the wall in place of his rather dull Library at Homerton, the heavily handled detail of which is somewhat suggestive of a stucco chapel of not too good a period.

Messrs. Vincent Harris and Moodie show their design for the City of Cardiff Fire Brigade. The drawing is a fine piece of draughtsmanship, and the architectural treatment shows a praiseworthy sense of restraint which is none too common.

Mr. Percy S. Worthington's design for the new Arts building at Manchester University is a well-considered piece of work. The detail is refined and scholarly, and

if there is any criticism one would like to make, it is that there is rather a sudden disconnection between the central block, which is in stone, and the supporting brick wings; but, in spite of this, the design is one which well repays careful study.

Mr. Leonard Stokes's design for the new quadrangle, Emmanuel College, Cambridge, appears in a modest pencil sketch, which hardly shows the design to advantage.

Mr. Edward P. Warren's design for a new building at Balliol College, Oxford, if not a particularly exciting performance, is a good sound example of collegiate architecture, and as a piece of design is very much to be preferred to the romantic efforts of Sir T. G. Jackson at St. Basil's Home and Hertford College, in the same city.

Mr. Alfred H. Cogle presents two designs for buildings in India, in which an attempt has been made to bring Indian methods of expression and detail into line with modern requirements, with results not altogether satisfactory. In our opinion these are good examples of what the New Delhi should not be.

The end wall to the right of the entrance door is given up to church designs, notable amongst which is Mr. Walter Tapper's design for the Church of St. Mary, Harrogate.

Mr. W. A. Pite has an interesting design for a church at Sekondi, West Africa, the keynote of which is its extreme simplicity.

The south side of the Thames has received a certain amount of attention from the town-planners, and both Mr. Mallows and Messrs. Davison and Niven are ready with schemes for its improvement. Mr. Mallows's scheme is shown by a fine drawing by Mr. Farey, and is chiefly remarkable for the chain of palatial buildings which mark the river front. Messrs. Davison and Niven's scheme is illustrated by some beautiful pen-and-ink sketches by Mr. Raffles Davison, who has made the present appearance of the south side (labelled by the authors "Derelict London") look so interesting that it seems almost a pity to want to do away with it!

On coming to the domestic work one is chiefly struck by the remarkable diversity of the different styles and periods which clothe our modern houses. In past years certain well-defined styles, such as "Georgian" or "Tudor," would seem to have the preference, but this year one is regaled by all the talents!

Mr. Lutyens exhibits designs for a house at Roehampton, and for an Art gallery in Dublin. The latter is a particularly pleasing combination of brick and stone, well shown in one of Mr. Walcot's delightful water-colours.

Mr. Blomfield has two designs for houses in his characteristic manner. They will probably look better in execution than they do in the drawings, which are a little bald and uninteresting.

Mr. Ernest Newton is well represented by several small sketches of quiet and harmonious designs for various county houses, which are in the best sense traditional and are worthy contributions to English architecture.

Probably the most striking design in the way of houses is Messrs. Blow and Billerey's "Wallingford Court," Berkshire. This is a brilliant rendering of English Jacobean architecture, and a remarkable example of the astonishing versatility of its authors, with whose names of late years we have been in the habit of associating work of a more academic and formal character.

Messrs. Unsworth, Son, and Triggs show two designs for country houses of an early half-timbered type. They look extremely well in their old-world setting of charmingly rendered gardens. We should imagine that in this case the real difficulty would be the practical realisation.

Mr. Goodhart-Rendel has a design for a house in Dean Trench Street, Westminster. It is a little



unhappy in its proportions, and not nearly so convincing as those charming unpretentious country residences which one associates with this architect, and which have been quite a distinctive feature in other exhibitions.

Mr. Brace has a good design for a Georgian type of house, which is a particularly pleasing composition, but it is not improved by the small back addition, which projects from one of the wings, and which would have been better if treated as an appendage at the side. Considerations of site may, however, have made this impossible. This is well shown in one of Mr. Horsnell's finely rendered drawings.

There is not space in the present article to criticise all the drawings or designs which are deserving of mention. An attempt has been made to deal with characteristic examples in the different groups rather than to summarise briefly all which are worthy of note, and it has been impossible to refer either to the painting or the sculpture. Before closing, however, one would like to draw attention to "the model of a figure executed in stone," entitled "Painting," by Mr. Poole. We believe this was carried out in connection with a recent building by Messrs. Lanchester and Rickards. It is conspicuous for its freshness of treatment, its perfection of finish, and its fine architectonic qualities, which add rather than detract from its charm when considered merely as a piece of sculpture, as seen at the exhibition, apart from its architectural setting. This figure should mark an important turning point in British sculpture, and is well worthy of the attention of architects and sculptors alike.

STANLEY C. RAMSEY.

#### Godalming Town Hall.

THE familiar town hall in the middle of the High Street at Godalming is just now the subject of keen local controversy, petitions having been addressed to the Town Council for its demolition, and counter-petitions for its preservation. The essence of the trouble, we take it, is the altered character of the traffic; Godalming, like every other place in the country, being now swept by motors: and as in all these cases everything is a nuisance that prevents people rushing along as though their lives depended on the saving of a few minutes, it is only natural that a petition for getting Godalming Town Hall out of the way should find plenty of support. If it constituted an actual danger, then down it should come; for, though an interesting building of the early nineteenth century, it is not so great a treasure that a single life should be hazarded by its retention. But it has stood these hundred years without fatal consequences to the little Surrey town, and believing that the present case is more one for the restriction of the craze for speed than the extinction of a pleasant little civic building, we wish the counter-petitionists every success. The suggestion, however, that it should be converted into a museum we heartily dislike. Museums are often the repositories of a miscellaneous collection of objects in which the public (for whose delectation they are ostensibly provided) are not in the least interested, and though the cause of Education be a holy cause, this matter of museums should be regarded askance.

#### Responsibility for a Falling Ceiling.

THERE can be hardly any more prolific source of litigation than the conflicting interests of landlord and tenant, and the falling ceiling is one of the most frequent subjects of dispute. It was at one time generally held that a landlord was not responsible for any damage that might be done by a falling ceiling. Then the view suddenly changed, and tenants obtained compensation for such damage. Now the question has assumed a fresh aspect. It appears that at the Rochester County Court Judge Shortt had held that

the landlord was not responsible for injury sustained by a tenant's daughter owing to the fall of a ceiling. The case was carried to appeal in the King's Bench Division last Thursday, when Mr. Justice Ridley held that the county court decision was right, and in dismissing the appeal he observed that if the Town Planning Act and the Housing of the Working Classes Act, under which the action was brought, could be held "to impose a responsibility on the landlord towards everyone else in the house other than the tenant, a stranger in the place would be able to sue if he received injuries through the landlord's failure to keep the place in repair." The natural retort is, "Why not?" Why should anyone suffer injury through the fault of another, whether or not the injured person was a party to the contract between landlord and tenant? It may be that in such cases the injured person has a remedy at law, but should seek it by a different process from that in which the result was a confirmation of the county court judge's view that as the contract of letting was made between the landlord and tenant, the landlord's liability was limited to the tenant only—a conclusion that, however correct technically, is ethically or morally so absurd that landlords may be earnestly advised not to put much faith in it as a precedent.

#### Corporation Trafficking.

AN incident that, small in itself, nevertheless involves a principle of considerable importance, has occurred at St. Helens, Lancashire. It reopens the old question of corporate trading. The St. Helens and District Master Builders' Association have seen reason to protest against the growing practice of the corporation to employ direct labour in carrying out building work. As a recent case in point they instance a new school clinic in Cloughton Street, where the plastering is or was being done by "direct labour," the corporation supervising the work themselves instead of placing it in the hands of a contractor. Unquestionably the master-builders are justified in making the strongest possible protest against this abuse, because it has been proved up to the hilt that corporation trading is in every respect obnoxious alike to the public interest and the public sentiment. It is uneconomical in two senses—it is too costly, and it does not square with just principles. Indeed, even if work done in this way came cheaper—and over and over again it has been proved infinitely dearer—it would still be open to the fatal objection that it puts the contractor in the intolerable position of paying rates in support of a powerful business rival. A corporation has no right whatever to compel a trader to contribute money which will be used to the direct detriment of the business by which he has earned it. The situation is not only illogical and absurd—it is atrociously unfair, and we trust that the organised master-builders will continue promptly and vigorously to protest against every instance of such corporation trafficking that comes to their notice.

#### Stafford House.

SIR WILLIAM LEVER is to be thanked for his magnanimity in not withdrawing his offer to give Stafford House to the nation, when mean motives were unwarrantably suggested in connection with the gift: and now that the offer has been accepted by the Government we may expect soon to see the London Museum housed, very appropriately, in one of the historic houses of the metropolis. Of the interior of Stafford House we are unable at this moment to speak, but, Sir Charles Barry having been concerned in its design and embellishment, we may expect to find some work of scholarly merit, and of a more inspiring character than the exterior, which, to tell the truth, is dull enough.



## THE SMALL SUBURBAN HOUSE COMPETITION.

WE reproduce in this issue a final selection from the designs submitted in our competition for a small suburban house, the awards in which were published in our issue for last week.

The two schemes shown on this page (the upper by Mr. J. J. Carswell, of Glasgow, and the lower by Mr. R. S. Vernon, of Cheadle Hulme), are interesting as two extreme interpretations of the conditions, the one on the most lavish scale, the other so restricted as to give only 10 ft. 6 in. by 10 ft. to the dining and sitting rooms, with a kitchen about 7 ft. 9 in. by 7 ft. 6 in. It is true that the author of the latter brings his total down to £224 7s., but this is quite beyond any reduction in cost which we had in mind.

Of the four schemes shown on the opposite page, that by Mr. Sidney H. Goodwin, of Enfield, has many interesting features, the principal among them being the large sitting-room, 22 ft. 4 in. by 12 ft. Like all others, however, it has points for criticism. The cycle store, for example, is curiously placed, and it is difficult to see a good reason for the door from the kitchen to the paved space. The kitchen, moreover, is poorly lighted, while, on the first floor, the fireplace in one of the front bedrooms is extremely awkwardly placed in relation to the door.

The scheme by Mr. C. O. Ap-Gruffydd, of London, E.C., offers a neat plan on rather unambitious lines, with surely the most economical first-floor landing which was ever devised!

Messrs. Cleland and Hayward's is also a simple little plan, rather on the lines of many recent houses in the suburbs.

The design by Messrs. S. P. Schooling and H. D. Hendry, of Sydenham, is one of six submitted by the authors. It has many good points, but requires no special comment. Attention, however, may be drawn to the compact arrangement of the first floor.

### *The Prize Scheme.*

One or two readers have sent a short criticism of the scheme placed first, by Mr. Frank S. Swash, A.R.I.B.A. Thus "A Competitor" writes: "The pleasant little entrance-hall has been obtained by having a larder only about 3 ft. 6 in. high at the window, and a head-room on the stairs at the turning point only about 5 ft. 3 in. high. To get over this the stairs must start beyond the side of the opening to the kitchen; then the nice square hall disappears, and the head-room on the stairs is further crippled, which means that 4 ft. has to be taken off the bedroom over." In reply to this, Mr. Swash says: "Your correspondent has overlooked the fact that the cupboard in the bedroom is raised above the floor level, as indicated by a line on the plan. To the 5 ft. 3 in. mentioned by him must therefore be added 2 ft. 6 in., being the thickness of floor and height of cupboard off floor, giving a head-room of 7 ft. 9 in. at the turning point of the stairs. Admitting that the space over the slate slab in the larder is low, ample space is available for ordinary requirements in the remaining portion of the larder."

From "A Builder's Widow" we have received the following: "All the three premiated designs have the dining-room opening on to and exposing the fireplace—a very uncomfortable arrangement. In the first and third, coal has to be fetched from out-of-doors. In the first and second the entrances are narrow, and from a narrow side path. In the first and second, the 'cycle' is on the front, while in the second and third it has to be brought through the hall. In the first the 'pergola' is not only expensive, but is very exposed for the lady of the house to keep clean and tidy. In the fourth it is omitted. If 'women had the vote' on this matter, they would certainly not look at a house with these glaring defects."

The charge is often made against architects that

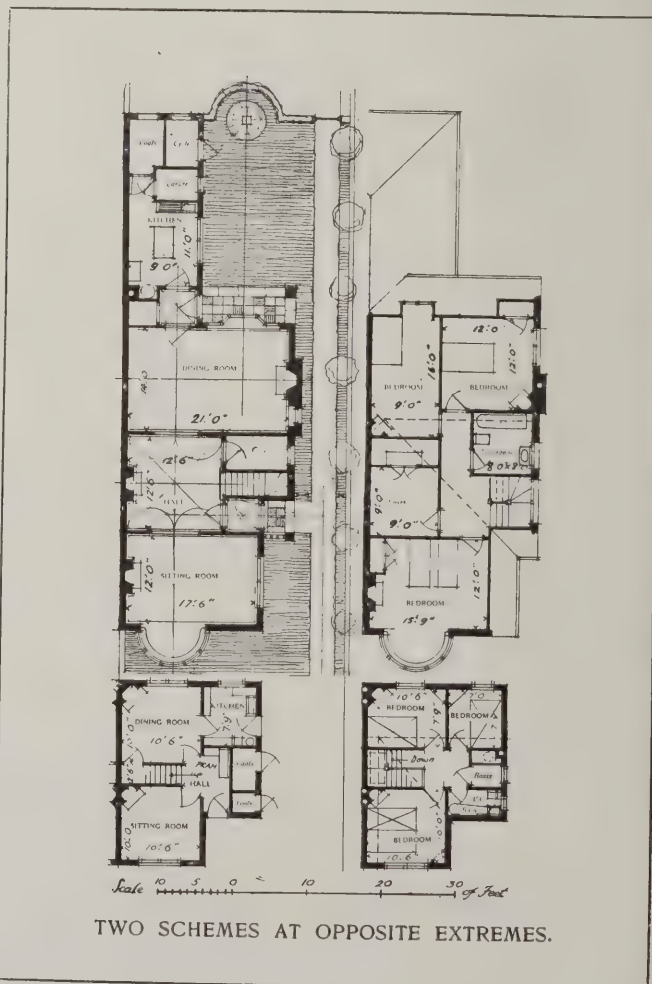
they take no account of the feminine point of view when planning their houses, and we publish the foregoing therefore as a warning! We cannot afford space to go into all the details criticised, nor to take upon our own shoulders the responsibility which properly attaches to the authors of the designs in question, but we would say, very briefly, that it is hardly "opening on to" the fireplace when the latter is 10 ft. away from the door; that having to walk a few steps from the kitchen door to the coal-house is not a very severe task; that the entrances can hardly be expected to be much larger than they are, and that the entrance off the side passage is no detraction, especially if a porch is taken across the two, as in the design placed second; that the position of the "cycle" in the designs placed both first and second has much to commend it; that the "pergola" in the prize design is admittedly open to criticism, though not necessarily imposing a heavy undertaking for its maintenance; and, lastly, that if the prize winners want their houses to be occupied they had better push on with all speed, before woman suffrage is accomplished!

### *Return of Drawings.*

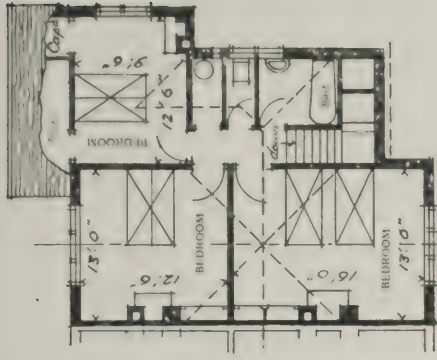
Drawings will be returned to competitors within the next week. Those who have not sent stamps for postage are requested to do so at once.

### *Competition for Elevations.*

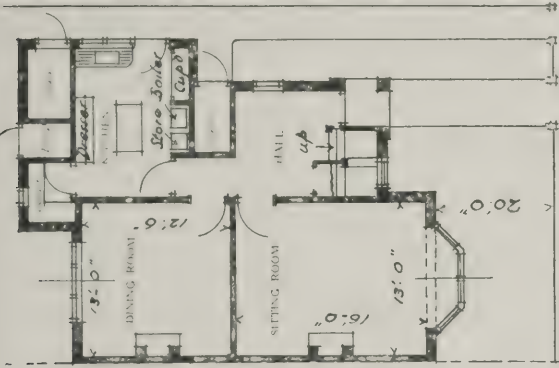
As already announced in our columns, we intend to hold a competition for elevations based on the plans placed first. Full particulars will appear shortly. We feel sure that, so much interest having been taken in the competition for plans, our new scheme will meet with a very wide support.



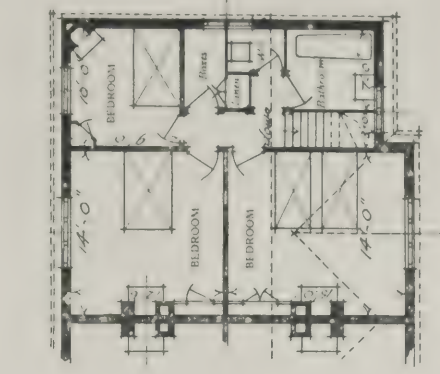




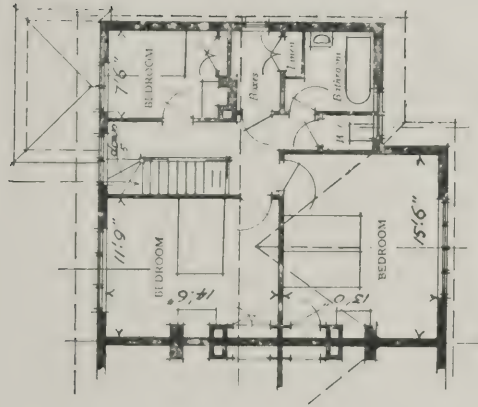
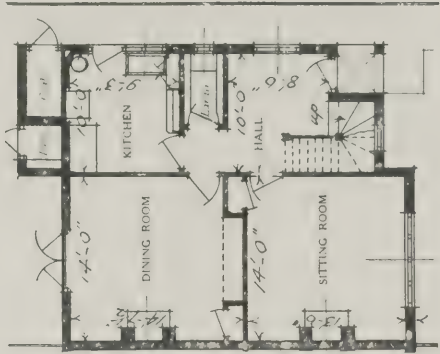
Scale of Feet  
0 5 10 20



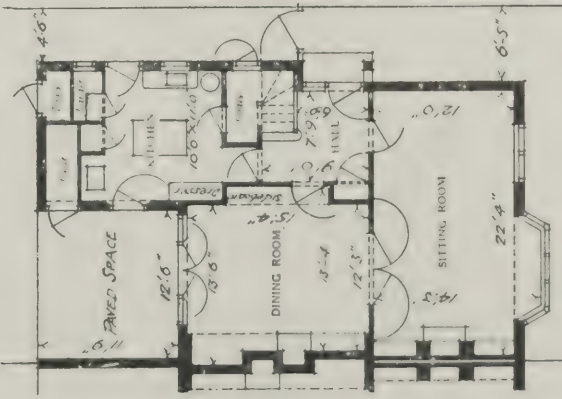
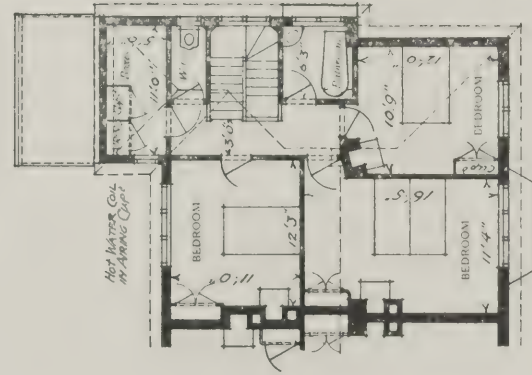
Design by C. O. Ap-Gruffydd.



Design by Cleland and Hayward.



Design by S. P. Schooling and H. D. Hendry.



Design by Sidney H. Goodwin, Licentiate R.I.B.A.

DESIGNS SUBMITTED IN THE SMALL SUBURBAN HOUSE COMPETITION

## CORRESPONDENCE.

*The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents.*

*Correspondents are asked to be brief and to write on one side only of the paper.*

*The Cheap Cottage.*

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—The best thanks of all interested persons are due to Mr. Potter for the concise manner in which he deals with the above subject.

I believe that in Mr. Swain's experiment the best intention is aimed at, but that the cutting has been too keen. I will only mention one item which occurred to me as I read the article which appeared in THE ARCHITECTS' AND BUILDERS' JOURNAL on March 5th, and which has not been touched upon, so far as I am aware, and that is the carting, £1 4s. A modest estimate would be about 50 tons, and no doubt some of the material would be bought in York, about four miles away. How does Mr. Swain manage to get all this material delivered for the sum of £1 4s. (two days for a two-horse team)?

The subject of ventilation is not mentioned, but I would advise anyone to hesitate about undertaking a similar experiment unless this is properly carried out. Mr. Potter's closing sentences are admirable; and, in view of proposed legislation, some of us are looking forward to some more refreshing fruit in the shape of cheap cottages.

I venture to think that when the time arrives for final costing up the result will not be £90, but rather more than twice that sum.

CLERK OF WORKS.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL

SIRS,—I had hoped that my letter of March 26th would be the last necessary from my pen, and I should certainly have passed over the letter in your issue of April 23rd, written by Mr. Thomas Potter, as a mere replica of Mr. Caulfield's letter of March 19th, which I answered, but there are certain insinuations which affect others beside myself, and therefore call for comment. Mr. Potter implies that the costs quoted by me are incorrect, and, in terms of generous kindness, assumes that I did so with the best intentions. I reciprocate Mr. Potter's good feeling.

I have never led anyone to suppose that the costs of the cottage in question were other than prime cost charges of labour and material only, which my figures clearly showed. Great care was taken to keep the exact costs, and each item was booked daily, and no material went on to the job without being booked. In fact, with Messrs. Rowntree's system of checking, it is next to an impossibility that faulty booking can be done, as nothing, however small, can pass through the gates or from one department to another without check slips; and it must also be borne in mind that the experiment was carried out by myself in order to get the exact figures. There was never any intention of publication in any way, but, owing to a report getting into one of the local papers, I was inundated with inquiries, and at request sent particulars to your journal. However, we are so satisfied with the result, and also by the favourable reports received from all who have seen it, and by a general clamour from local families for similar cottages, that we are erecting several at the village. Quantities and supposititious prices are of course of little value against actual figures, and I should much like to see Mr. Potter's priced quantities, and compare with my costs. It is well known that builders' prices never agree, although estimating for the same materials and in the same town, because there is always a very large element of doubt in the cost of labour. Why? Because the workman is usually the replica of his master. If the master is content to remain in the same groove as his grand-

father, so will his men be. If you would build well and cheaply, you must have thorough knowledge yourself and not have to rely upon asking other people's opinion. Fancy asking a firm of asphalters their idea of a concrete roof without asphalt! You might as well refer to your butcher for hints on vegetarianism. And then, above all, you must have method. I have all my work at the cocoa works measured, checked, and priced weekly, with a chart for each job, so that I can see at a glance the financial state of each job compared with estimated prices; and seeing that the workmen continuously employed in the building department last year numbered over 200, it goes without saying that this method of checking entails a lot of labour. Yet it pays.

There are two essential points necessary before you can construct well and cheaply. First, know exactly what wants doing, and, secondly, do it. It is having so much doubt about everything that allows the foreigner to forge so far ahead of us. The man who says it can't be done is out of touch with the present times. Much has been said in several papers lately about the boiler ashes I used for concrete not being charged for, and it has also been implied that the cottage was entirely built of these ashes; hence the cheapness. Of course this is not the case; and had I used only gravel and sand, the total cost would not have been increased by more than £3. I used ash concrete for interior work because I prefer it, the reasons for which I gave in my previous article. I paid 1s. per load carting charges; but had I been building in Leeds, Bradford, or other of the large cities of Yorkshire, I could not only have procured these clinker free, but received 6d. to 9d. per load for carting them away.

Mr. Potter goes so far as to state that the roof was composed of ash concrete; but then Mr. Potter makes so many funny statements that I am in doubt as to whether his article was intended for a "political" thrust at Mr. Runciman or a dig at myself for performing one of his impossibilities. Or am I to take it that it is another way of procuring free information as to how I construct a 4 in. thick reinforced concrete flat roof, which won't crack or fall in (although forty persons stood on it at one time three weeks after setting), which won't leak for years and years although it hasn't been asphalted, and how I can build a 2½ in. thick plebeian ash concrete slab partition wall which will stand proudly erect and bend to no one? If for the last reason, it is the last straw. I have been overwhelmed with letters asking advice on concrete and general house construction from persons all over the country, who seem to think that cheap cottage construction means inexpensive thought and labour. I think four persons out of the vast number sent stamps for replies. I enclose herewith a cutting from the "Daily News and Leader" of April 1st, which is a letter from Mr. Thomas Potter answering correspondents in that journal with reference to my experimental cottage. Your readers comparing this with his letter in your issue of April 23rd will readily see why I find so great a difficulty in reconciling myself to his statements.

W. J. SWAIN.

The following is a copy of the letter to which Mr. Swain refers:

## "CHEAP COTTAGES.

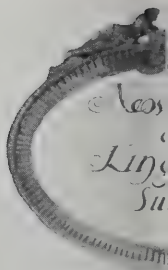
"Mr. Hallam makes a mistake in saying that boiler ashes and coke breeze are identical. They are both of course, coal residues, but very different in character the result of quite different processes.

"For many concrete purposes boiler ashes are the best, and, all points considered, there are but few materials so good. I have used thousands of tons for many years past.

"With regard to Mr. Hallam's remarks that concrete cannot be made waterproof, he is quite wrong







SOUTH ELEVATION



GROUND FLOOR PLAN

10 5 0 10 20 30

SCALE  
Sixteen feet

CYRIL A. FARTY. Des. 1912

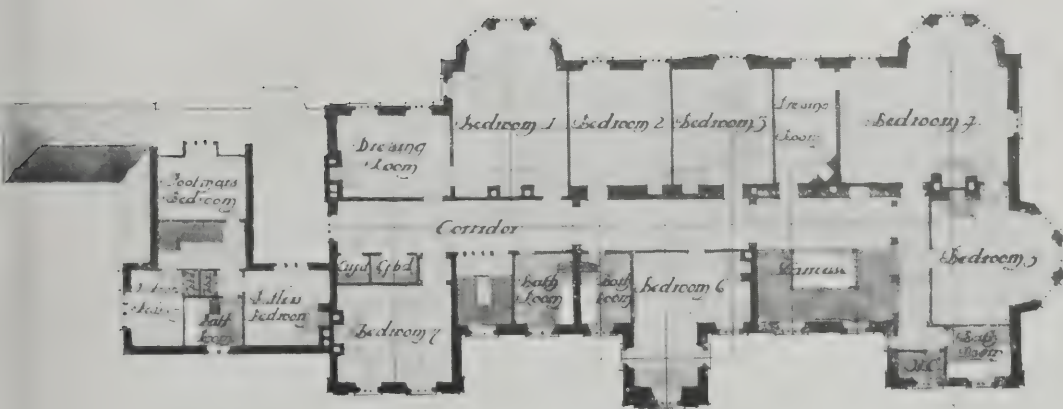
(Royal Academy)



od



HOUSE ELEVATION



FIRST FLOOR PLAN

60 70 80 90 100

FEET  
1 inch

Ernest Worthington  
Architect  
4 Dagenham Buildings  
London E.C. 1





though it is better and safer to coat or cover the walls of concrete buildings with cement rough-cast or pebble ash. I lived in several concrete houses in exposed situations for nearly twenty-five years; in one the concrete was made from river gravel, in another crushed brick and brickyard débris, and in another slag from an iron ore—the walls faced as described; and in each case they were perfectly dry, and the interiors warmer in winter and cooler in summer than is usually the case with houses built with brick walls of a similar thickness.

"As a matter of fact, although I have erected a large number of concrete cottages, I never knew one to be damp, but there is concrete and concrete."

"Croydon, March 31st." "THOMAS POTTER."

#### *The Garden Suburb Movement.*

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—One does not know if "Englishman's" amazing letter in your last issue is intended to be taken seriously.

I would like to remind him that it happily takes all sorts to make a world, and that some people prefer to live in the country, some in towns, and some even in suburbs—garden or otherwise.

Whilst we fully appreciate every effort made to beautify our large towns, we ought also to be grateful to those architects who are evolving a newer and healthier type of suburb; a semi-countrified place where the taxis cease from troubling and the weary are at rest. Till London, or any other large town, can show as low a death-rate as Letchworth, the question of health is distinctly on the side of the garden city.

Your correspondent speaks of the "gimcrack" and "temporary" houses in garden suburbs; but at the Hampstead suburb the houses are designed by some of the foremost architects of the day (e.g., Messrs. L. Lutyens, Guy Dawber, Arnold Mitchell, Raymond Unwin, etc.); and one feels that the charges of your anonymous correspondent would in his case be difficult to sustain.

Would your correspondent have the garden citizens desert the wilds of Hampstead for some such centre of sweetness and light as Poplar or West Ham?

Hitchin. G. H. RUSSELL, M.S.A.

## OUR PLATES.

### *House at Kingswood, Surrey.*

AS the centre plate in this issue we illustrate a drawing of a house at Kingswood, Surrey, now in course of erection from the designs of Mr. Ernest Newton, A.R.A., F.R.I.B.A. The main walling is carried out in purple stocks of varying colour, with dressings of brighter red kiln bricks. The porches are built of Portland stone. The cornice is of brick, and the roof is covered with red tiles, the hips and ridges being of lead. Moulded brick is used for the chimney caps. The original drawing from which our reproduction was made is now on exhibition at the Royal Academy.

### *Medical School, Harvard University.*

On pages 491 and 493 we publish two photographs of the fine group of buildings that form the Medical School at Harvard University—which is at Cambridge, a suburb of Boston, U.S.A. These buildings are of interest both as a group and as individual designs. The exterior is given as the frontispiece to this issue, and we reproduce also a detail drawing of the main entrance, which is somewhat unusual both in plan and elevation. The building is of steel-frame construction throughout, and there is a reinforced concrete retaining wall in the basement.

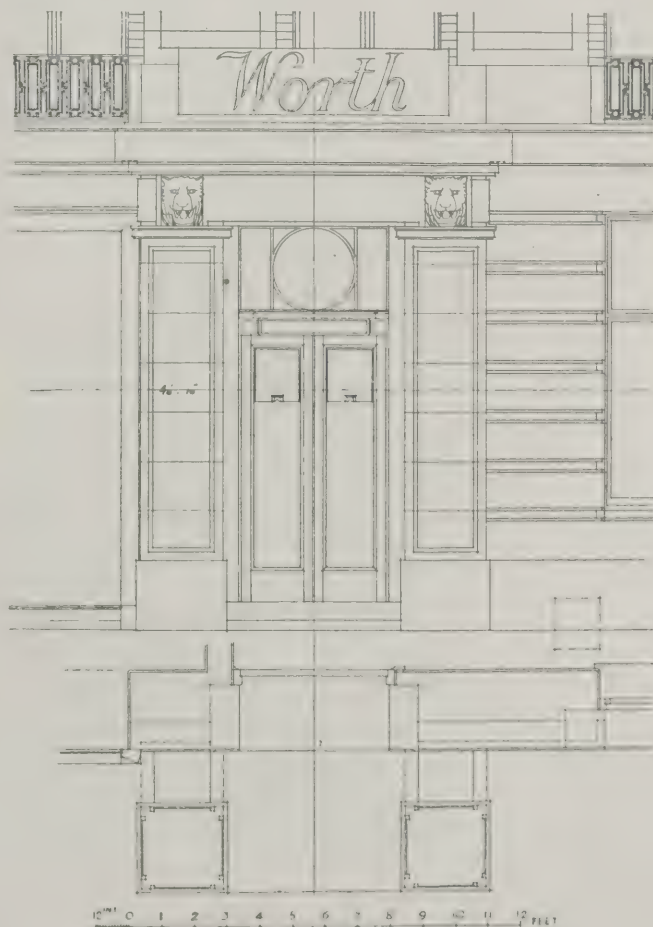
They are carried out entirely in marble, and thus have an added splendour. Though severe in their general treatment, they are enlivened by a good deal of lightness in the detail, while their general dignity, appropriate to their university purposes, is at once apparent. Medical museums and lecture theatres are housed within them. The architects were Messrs. Shipley, Rutan, and Coolidge.

### *"Heath Lodge," Headley, Surrey.*

As the eighth example in our new series of houses we illustrate "Heath Lodge," Headley, Surrey, designed by Mr. E. Guy Dawber, F.R.I.B.A. This house, which occupies a site overlooking Headley Heath and some miles of open country, is built with red bricks with dark headers, a wooden moulded cornice, and a red tile roof. The interior is treated in a very simple way, the parlour having white panelled walls, the best rooms all being provided with mahogany doors. The garden has been laid out in a formal scheme from the architect's design. The builders were Messrs. Oldridge and Sons, of Kingston.

### *New Business Premises, Hanover Square, London.*

As the twenty-fourth example in our series of working drawings by well-known architects, we publish, on pages 496 and 497, the elevation of new business premises recently erected in Hanover Street and Hanover Square, London, W., from the designs of Messrs. John Belcher, R.A., and J. J. Joass, F.R.I.B.A. The building is carried out in red brick with stone dressings, the roof being covered with Westmorland slates. The ground floor and basement are occupied by the London Stereoscopic Company, the remainder of the building being devoted to workrooms and showrooms for Messrs. Worth, of Paris, to whose instructions the internal planning and arrangement was carried out. We regret that no plan of the building is available for reproduction. A general view of



BUSINESS PREMISES, HANOVER SQUARE, LONDON: DETAIL OF ENTRANCE.

JOHN BELCHER, R.A., AND J. J. JOASS, F.R.I.B.A., ARCHITECTS



## HERE AND THERE.

MR. DOOLEY having vociferously proclaimed, in his Irish-American way, that "the hand that rocks the fountain-pen rules the wurld," many writers are now doing their best to tell the British Public what it ought to think of this year's Academy. Fortunately, it does not devolve on me to give any estimate of those two thousand pictures in the familiar rooms of Burlington House, so that I can pass lightly by the ghostly Royal group, with its hectic dabs, and keep to myself all I may think of the newer oleographic manner of Mr. Hacker, the solid thickness of paint on Mr. Arnesby Brown's cattle pictures, the innumerable portraits, or the quiet grandeur of Mr. Hughes-Stanton's Normandy landscape; but, being concerned with Architecture, I cannot disregard that tranquil room where the jaded visitor may rest awhile as in a quiet backwater off the busy stream. It is not my present intention, however, to embark on a review of the Architectural Room: that task being apportioned to more critical pens. But in due course I found myself, one day last week, luxuriously resting on that Academy settee which must surely share with the Club arm-chair the honour of affording the acme of comfort. And thus seated I fell to musing over the draughtsmanship around me. It is of all sorts, some good, some bad, though in what proportion let the kindly critic be silent.

Many perhaps who read this page can recall a score and more of Academies, and so are in a position to know, much better than I can ever hope to, how the architectural draughtsmanship of to-day compares with that of yesterday and the day before. Nevertheless, I can perhaps make a shrewd guess, taking as a criterion the work of distinguished architects whose drawings have been long exclusive to this little corner room. And, frankly, I must say that the draughtsmanship of the newer men is vastly more attractive. Sir T. G. Jackson's perspectives of new buildings at the Universities may be taken as typical of the older school. And very dull they are, with their scratchy line and dirty wash. We may well seek a more attractive manner. But we do not find it in those lampblack-and-Paine's-grey drawings which disclose cast-iron buildings to the astonished gaze of a miscellaneous collection of dolls posing as human beings. These hard mechanical efforts must certainly be put without the pale, and a good handful of them in the present exhibition might thus be treated. Neither can we be much better pleased with the fat-line draughtsmanship so frequently seen in competition designs, nor its counterpart, the thin line drawing which puts in every blade of grass with distressing perseverance. What, then, shall be said in praise of anything in the Architectural Room? Well, there are Mr. Walcot, Mr. Gascoyne, Mr. Horsnell, Mr. Unsworth (or is it Mr. Triggs?), Mr. Rickards, Mr. Farey, and several others to show us that an architectural drawing can have an artistic as well as a technical interest.

Mr. Walcot is the most convincing exponent, as we may see from his drawings of the Union Buildings at Pretoria (by Mr. Herbert Baker), the Dublin Art Gallery and Roehampton House (by Mr. Lutyens), and "Woodcote" (by Messrs. Detmar Blow and Billerey). Like every other artist, he has his mannerisms, with certain stock features—like the splash of blue sky which is applied with equal serenity to Oxfordshire as to Cape Colony, but there is no question that his drawings are of a very delightful quality, and the Architectural Room is vastly enlivened by their presence. His is markedly the art of leaving out. Mr. Walcot would seem to be a whole-hearted supporter of Whistler's creed—"suggestion, never depiction"—but in a draw-

ing which is intended to show modern design from a technical rather than an artistic point of view, we may claim a right to see the detail, and this Mr. Walcot has a tendency to put in too sketchily.

Mr. Horsnell generally has to show us some excellent perspectives of houses by Mr. Ernest Newton, but this year the latter are all represented by coloured elevations and plans, skilfully executed by Mr. Farey. Of Mr. Horsnell's work, however, we have a captivating example in the new headquarters for the Cardiff Fire Brigade (Messrs. Vincent Harris and Moodie, architects). Mr. Gascoyne floods a whole wall with his interior and exterior perspectives. It is always a trial to see in one place a number of works by the same artist, because if he has any persistent tricks their effect is likely to be exaggerated by thus being juxtaposed. Thus the sombre yellow-browns and mystic atmosphere of Mr. Gascoyne's perspectives, admittedly good as they are individually, begin to pall a little after seeing half a dozen of them together. It was with the more pleasure, therefore, that I studied the same artist's perspectives of Sir Aston Webb's new façade to Buckingham Palace and new Government offices in Dublin. In both these cases there is a pervading tone of greeny-grey enlivened with broad portions of white. The result is extremely happy, the buildings having, in particular, a wonderfully substantial appearance. Unless my memory plays me false, in these two cases Sir Aston Webb's buildings are seen in very threatening weather—either there has been thunder and rain, or the same cataclysm is about to take place: and, similarly, I noticed that Mr. Reginald Blomfield's additions to "Lockleys, Herts," were under a very substantial cloud, with a background so scribbled over in brown ink and pencil as to make it difficult to say whether foliage or a blackened sky was intended. Another house in a similar plight is Wallingford Court, Berkshire—really a delightful design by Messrs. Detmar Blow and Billerey, but one which the sombre gloom of a rainstorm does not display to advantage.

For sweet mellowness there is nothing in the room to equal the two perspectives of houses by Messrs. Unsworth, Son, and Triggs. We are apt, indeed, to regard these as water-colour studies, exquisitely soft in effect, and it needs some little effort to realise that we are looking at new houses, not old ones. The red brick walls overspread with rose and creeper, the tiled roofs with a hundred tints on them, the terrace walks bordered by flowers in luxurious profusion, the broad expanses of lawn—these, seen in a rosy light, go to the making of drawings which are altogether delightful. It is a rare talent that produces them.

In the glow of the evening, too, we are invited to study King's College for Women (by Messrs. Percy Adams and Charles Holden)—a very pleasant drawing by Mr. Holden presumably; while in the perspective of the new Mappin Terraces at the Zoo (Messrs. John Belcher and J. J. Joass, architects) the draughtsman has become so inspired with the glorious possibilities of this novelty that we can imagine ourselves gazing over the brown scrub of Africa rather than the green prosaicism of Regent's Park.

Thus we may pass around the room, meeting old friends like Mr. Raffles Davison, whose perspectives are wonderfully truthful, and new friends like Mr. Clough Williams-Ellis, whose picture of rebuilding and additions at Plas Brondanw has all the quality of a fairy-tale illustration. But with the good things there is no little admixture of commonplace draughtsmanship, and that is dispiriting.

UBIQUE.





GROUP OF MARBLE BUILDINGS FOR HARVARD MEDICAL SCHOOL, BOSTON, U.S.A. SHIPLEY, RUTAN, AND COOLIDGE, ARCHITECTS.

(See page 490.)

LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS



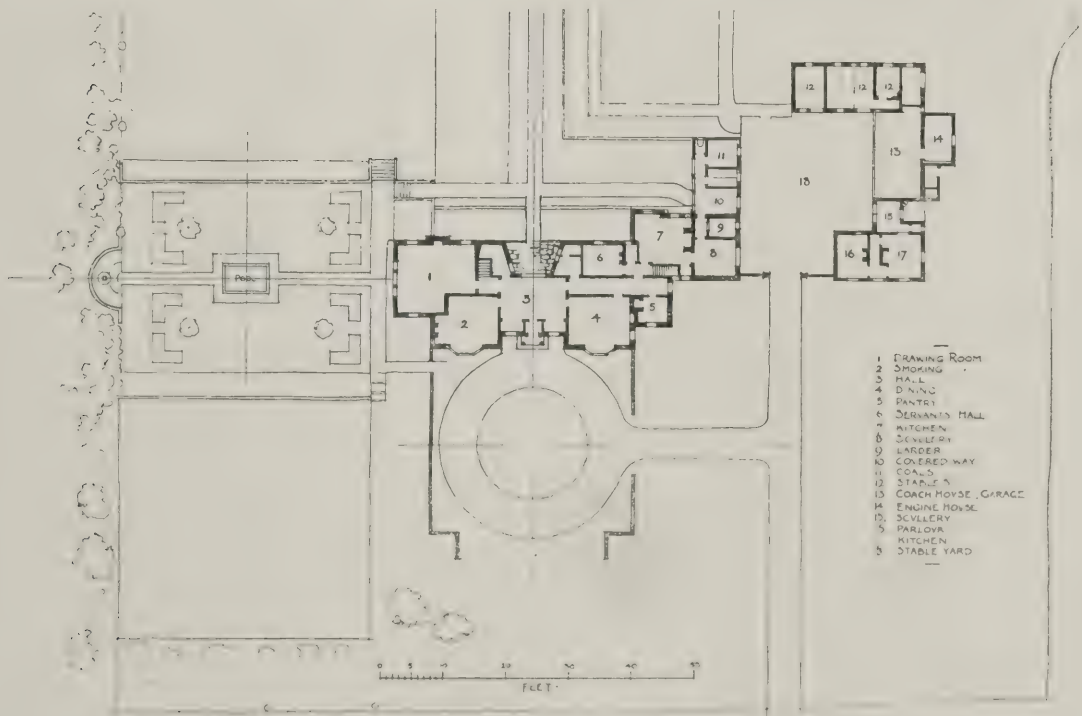


HARVARD MEDICAL SCHOOL, BOSTON, U.S.A. SHIPLEY, RUTAN, AND COOLIDGE, ARCHITECTS.

(See page 490.)

UNIVERSITY OF ALABAMA

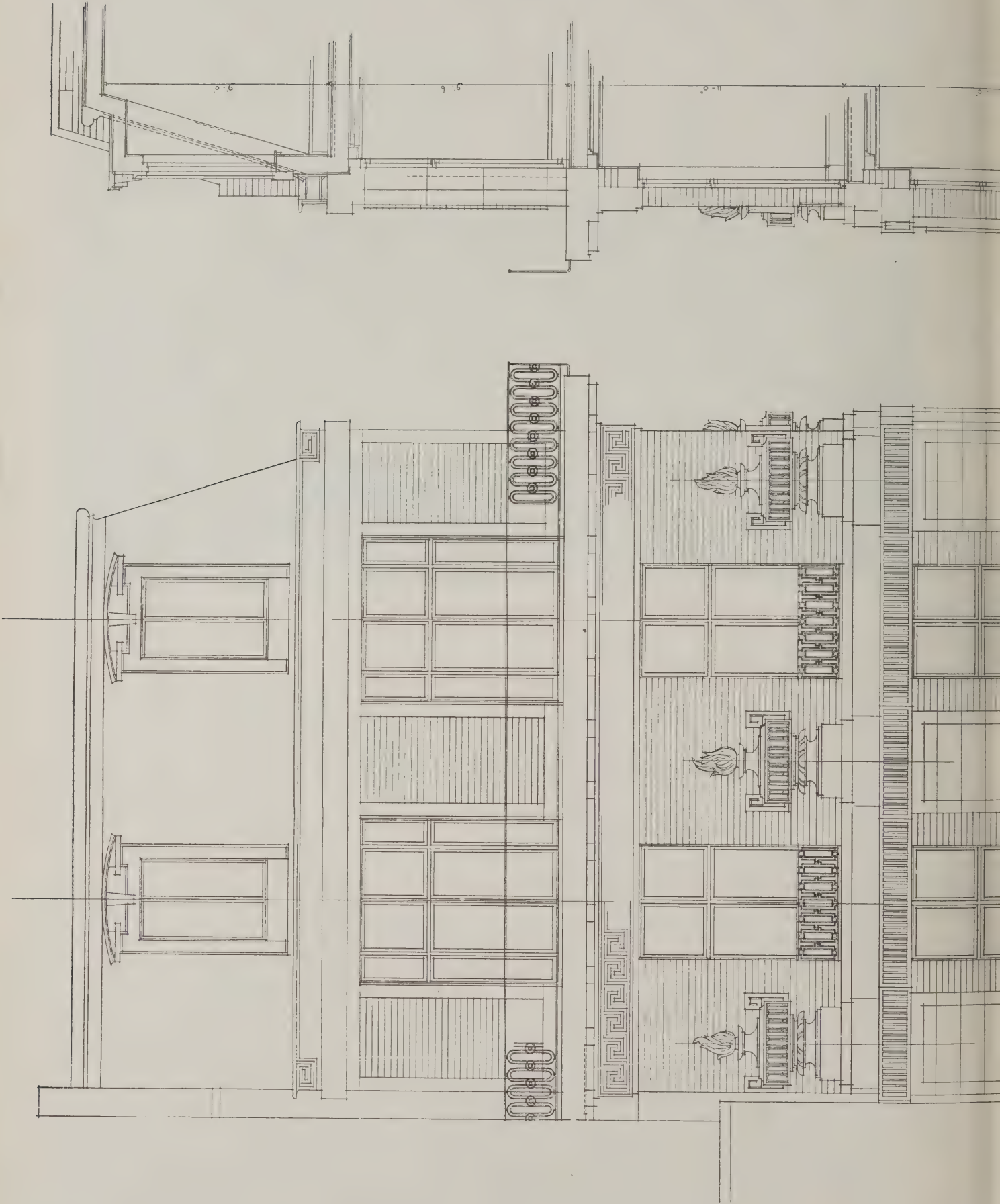




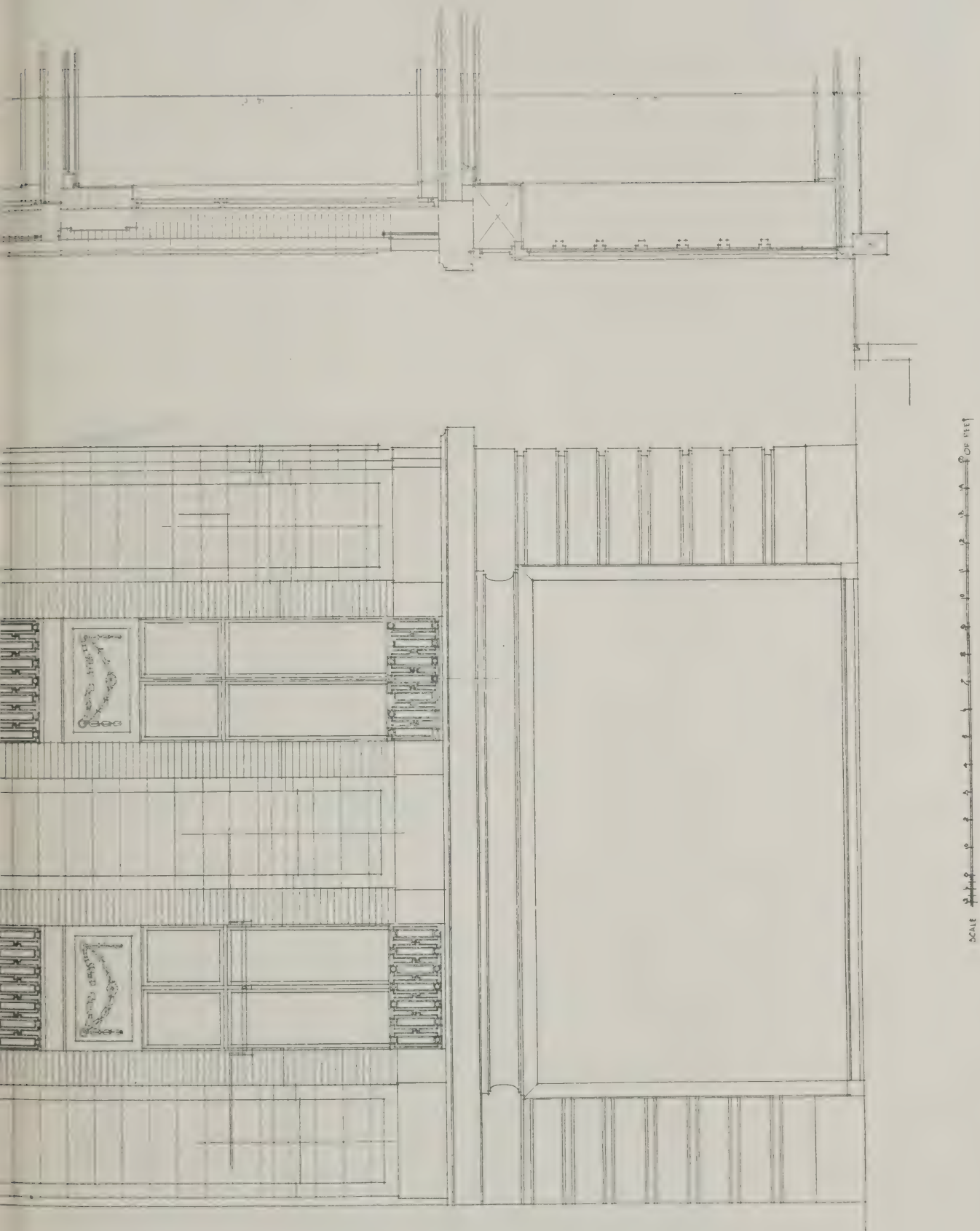
MODERN DOMESTIC ARCHITECTURE. HOUSES OF INTERMEDIATE SIZE. VIII.—"HEATH LODGE," HEADLEY, SURREY.

E. GUY DAWBER, F.R.I.B.A., ARCHITECT.

(See page 490)







WORKING DRAWINGS BY WELL-KNOWN ARCHITECTS. XXIV.—NEW BUSINESS PREMISES, HANOVER STREET AND HANOVER SQUARE, LONDON. W. JOHN BELCHER, R.A., AND J. J. JOASS, F.R.I.B.A., ARCHITECTS.

(See page 490.)

# THE ELECTRIC LIGHTING OF WESTMINSTER ABBEY.

## A DESCRIPTION OF THE NEW INSTALLATION.

THE desirability of lighting Westminster Abbey by electricity was a matter which came under consideration at the time of the Coronation of King Edward VII., in 1902, when, for the purpose of the ceremony, the dais, the altar, and the temporary structures were electrically illuminated, the work being carried out by H.M. Office of Works. Similar arrangements were made for the Coronation of King George V., in 1911, and the Dean and Chapter subsequently decided that the moment was appropriate for putting in a permanent electric installation. With this object in view, the Office of Works undertook to leave in the Abbey the main switchboard, the cables, and the sixteen electroliers in the nave, which had already been provided for the Coronation lighting.

The temporary structures, erected for the purpose of the Coronation, having been removed, Mr. Samuel W. Maddick, one of the Office of Works electrical engineers (by whom, under their chief engineer, Mr. H. A. McFerran, the Coronation lighting had been arranged), was transferred, together with a few of the workmen, to the Dean and Chapter, in order to complete the general lighting of the Abbey. This has now been accomplished, and it is thought that, in view of the great national importance of the building, some authoritative account of the work should be given.

It will easily be realised that the work presented many extremely difficult problems. The primary and inflexible condition upon which it was allowed to proceed was that no damage should be done to the structure, and, after a thorough inspection of the whole installation, it must be admitted that this condition has been scrupulously observed. Nothing has been done that could in any way provoke criticism, much less the charge of vandalism which is quite commonly made whenever alterations of any kind are introduced into old buildings. Every possible care and precaution has been taken to make the installation thoroughly safe, sound, and efficient, and a number of interesting devices have been introduced in order to avoid undue interference with the fabric and the internal fixtures.

### General Disposition of Lights.

A general description of the lights and their disposition about the building may first be given. In the nave there are sixteen six-light electroliers, of which the two nearest to the west door are a conversion of a design for candles by Sir Gilbert Scott. Three other fittings of similar design are installed in the choir, those remaining in the nave being in replica of an old Flemish type, previously used for candles. (Fig. 3.) There are four four-light fittings of the same general design in the south aisle and Poets' Corner, and three in the north aisle of the nave and the west aisle of the north transept. The north and south transepts are each lighted by five six-light fittings, of which the two beneath the lantern (or the crossing of the nave and transepts) are suspended from jibs projecting through doorways above the level of the vaulting, in order to preserve the equal spacing of the lights. There are two six-light fittings in the sanctuary and two in Edward the Confessor's Chapel, behind the altar. All the fittings hitherto described are about 18 ft. 6 in. apart and 13 ft. 6 in. above the floor level. They are

suspended by a multiple cable, consisting of a core (about  $\frac{1}{4}$  in. diameter) of seventy-two hard-drawn stranded steel wires, each of which will carry much more than the weight of the electrolier (about 30 lb.), the breaking strain of the whole being considerably over one ton. The cable has six heavily insulated flexible conductors laid around.

It will be seen, therefore, that a very considerable margin of safety has been allowed. The cable and the conductors are surrounded by a certain amount of filling (in order to give the whole a smooth rounded appearance) and braided outside, the total diameter being  $\frac{3}{4}$  in.

### Points of Suspension.

The cables of the fittings in the nave are introduced through holes in the bosses at the junction of the intermediate and transverse ribs of the vaulting. These holes, which are about 2 in. in diameter,

were already in existence, though plugged with corks. There can be no doubt that the bosses were left in this condition by the mediæval builders, but the original purpose of the holes is somewhat problematical. It is probable that they were used for the suspension of the "rowells," or coronas of lights, which formed one of the chief means of illumination during the Middle Ages. Another theory, however, is that they had something to do with the ventilation of the building, but this seems rather improbable. It may be mentioned in passing that the weight of the fittings depends, not upon the vaulting, but upon an ingenious arrangement of girders fixed to the roof timbers. The method employed will be described later.

The fittings in the choir and in the transepts are suspended through the bosses at the intersection of the diagonal and transverse ribs; those in the north and south aisles, however, hang from the tie



Fig. 1. View in Nave, showing Double Line of Electroliers.



Fig. 2. View looking across Transepts, showing Single Line of Electroliers.



rods which cross at the springing of the arches, as it was deemed inadvisable to bore through the vaulting. In addition to the fittings already mentioned, there are four-light electroliers in the east aisles of the transepts and seven of six-lights in the ambulatory, all being of the same Flemish design and suspended from the rods. All the fittings in the main body of the Abbey are of polished brass; but in St. Faith's Chapel, which is an annexe to the south transept, there are three four-light fittings finished in antique bronze, which is perhaps rather more appropriate to the subdued aspect of the interior. These also are adapted from the same Flemish design. In the sanctuary the tables are introduced through holes in the transverse ridge of the vaulting.

#### *Choir Stall Fittings.*

The choir stalls are illuminated by fourteen special tubular reflecting fittings—seven on either side of the choir. The fitting (Fig. 5), a patented invention of the electrical engineer, Mr. Maddick, is of plain design, well made, and finished a natural bronze colour, which harmonises perfectly with the carved oak surroundings. A long narrow opening is cut in the tube of the fitting, the lower edge being serrated, and thus effectively subduing the light upon the upper part of the music. Above the slot is an adjusting shutter, which is used for cutting off the light at the extreme lower edge of the music, and by these devices an equal and mellow illumination is provided over the whole surface. A second slot, also having an adjustable shutter, is provided at the back of the fitting for the purpose of lighting the music of the choir boys, who sit in front of it, and at a lower level than, the lay vicars



Fig. 3. Six-light Electrolier, Westminster Abbey.

or choirmen. Each fitting contains two tubular lamps. The stalls of the Dean, the Sub-Dean, the Canons, and the Minor Canons are all provided with similar fittings.

#### *Henry VII.'s Chapel.*

The most difficult problem of the whole

installation was encountered in Henry VII.'s Chapel, and only after much serious consideration was a satisfactory method of lighting devised. The authorities at once decided that the roof, with its elaborate fan tracery, rendered overhead lighting impracticable, and to fix anything permanently to any portion of the carving of the stalls themselves was considered undesirable. Ultimately, an arrangement was made for placing detachable standards on the carved finials of the vertical heads of each row of stalls. There are seven of these standards (which are of natural bronze finish) on either side of the chapel, each being fed electrically by twin flexible leads. The conductors are enclosed in a flexible steel tube fitted with earthing pins at each end—one to a special plug-box screwed to the angle of the desk, and the other to the base of the standard—the whole being thus effectively earthed, as shown in Fig. 4. This arrangement appears to solve the problem of the earthing of flexible conductors as used for floor standards, table lamps, etc., and by its adoption in the Abbey fire risks have been altogether eliminated. The only permanent fixtures consist of small circular plates, fixed to the top of the stall-heads, and provided with three bayonet slots, into which are engaged three pins projecting on the underside of the base of the lamp standards.

The lighting of the chamber containing wax effigies, which is situated in the north ambulatory, has been rearranged in conformity with modern practice, while in the cloisters two old seven-light gas standards have been converted into three-light electric standards, and fixed at the east and west cloister doors.

#### *Current Supply.*

The main source of current supply is brought across the cloister green to a chamber beneath the organ loft, where a large switchboard, carefully labelled, controlling all the lights in the nave, the aisles, the choir, and the transepts, has been fixed. Here, also, are two distribution boards for the general lighting, north and south, and two small switchboards for the lights of the choir stalls—one control-



Fig. 4. View showing New Electric Standards in King Henry VII.'s Chapel.



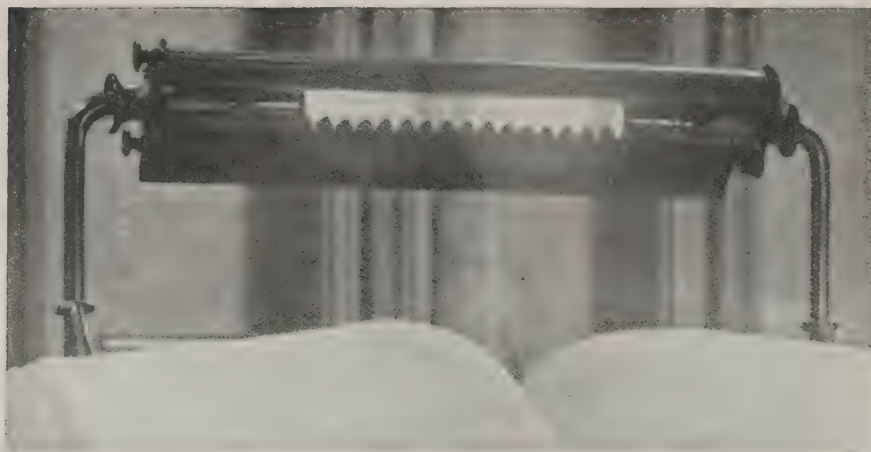


Fig. 5. Tubular Reflector on Choir Stalls, Westminster Abbey.

ling Cantori and the other Decani. The lights in the sanctuary, the ambulatory, and Henry VII.'s Chapel are fed from another source of supply, the switchboard being located at the foot of the staircase of the turret at the south-west angle of the chapel. The current is supplied by the Westminster Electric Supply Corporation. The conductors for the main building are taken up in a copper pipe behind the organ on the south side of the choir. They then continue up through the roof of the triforium, and emerge by the side of a flying buttress, to which they are fixed with gun-metal lewis bolts fitted with clips. They are taken in again at a level between the vaulting and the external roof, terminating in a main box, from which the circuits are distributed to smaller boxes as required. Galvanised steel conduit is used throughout, except where the conductors pass out into the open air. In this case solid drawn copper wire is substituted, and in no instance is a smaller size than  $\frac{3}{4}$  in. employed. The whole distributing apparatus is suspended from the roof timbers by iron hangers and straps. None of the conduit or piping is visible in any part of the Abbey.

#### *Method of Suspension.*

For the suspension of every fitting in the nave, transepts, choir, sanctuary, and Edward the Confessor's Chapel, with the exception of the two immediately beneath the lantern, which are specially bracketed out, as already explained, a 6-in. channel-steel girder has been provided, two methods of fixing being employed. In the nave, the sanctuary, and Edward the Confessor's Chapel there are two lines of fittings, running longitudinally with the building, and consequently two lines of corresponding suspension girders are required, these being fixed to the subsidiary rafters of the roof trusses by means of substantial cast-iron brackets. The method employed is shown in Fig. 6. In the choir and the transepts, however, single lines of lights only are employed, and the girders are accordingly fixed (also by brackets) between the king posts of the trusses. Fixed at the points of suspension, upon the web of the channel steel, are two single-pole cutouts of ample proportion, one on each side of a  $1\frac{1}{4}$  in. hole, through which the flexible leads are passed. These cutouts, in addition to providing the means for fusing, are also convenient for disconnecting the flexible leads whenever it may be necessary to lower an electrolier.

The weight of each electrolier is taken by a bail, or "U" bolt, of  $\frac{3}{8}$ -in. iron, bolted through the web of the channel steel, the actual carrying agent being a gun-metal hook, spliced into the steel core

of the cable by a heart-shaped thimble. This hook is cast with a projecting eye, to which is attached a rope for the purpose of lifting the electrolier and for releasing the hook from the bail. (See Fig. 6.) The whole arrangement is made safe from injury by a cast-iron cover fitted over the flanges of the channel steel, to which it is attached at both ends.

#### *Minor Details of the Installation.*

In addition to the lighting of the interior of the building, it was considered advisable to make some permanent installation in the roof, in order to facilitate access to the hydrants, etc. Accordingly, four lights have been provided over the nave, two over each transept, and two over the sanctuary, plug connections having also been fixed at convenient points.

The average amount of lighting formerly provided in the Abbey by gas and candles was less than 10 candle-power per 100 ft. super.; the average by electricity is 40 candle-power per 100 ft. super., a very considerable increase. The new installation has given complete satisfaction, the lighting, owing to the careful spacing and adjustment of the electroliers, being equally



Fig. 6. Detail showing method of Suspending Electroliers, Westminster Abbey.

distributed over the whole area of the building.

Coincident with the alteration in the lighting, an electrical plant for blowing the organ, consisting of two 5.5 h.p. Watkins and Watson Discus blowers, has been installed by the organ builders, Messrs. William Hill and Son. The organ was formerly blown by a gas engine. The special fittings were supplied by the following firms: Messrs. William Sugg and Co., Ltd. (electroliers and standards in Henry VII.'s Chapel), Messrs. A. Emanuel and Sons, Ltd. (choir fittings), Messrs. E. E. Moy, Ltd. (main switchboard, etc.), Messrs. A. P. Lundberg and Sons, Ltd. (special switches and connections for standards in Henry VII.'s Chapel). The installation, in accordance with the arrangement already explained, was carried out entirely by the Dean and Chapter.

## IN PARLIAMENT.

(By Our Press Gallery Representative.)

### *The New Delhi.*

Mr. Montagu, replying to Mr. King in the House of Commons, stated that Mr. Lanchester, in addition to his travelling and out-of-pocket expenses, received a fee of ten guineas a day, equivalent to 300 guineas a month, for the period of his engagement when visiting Delhi at the request of the Viceroy. The members of the Delhi Town Planning Committee, in addition to their travelling and out-of-pocket expenses, received:—Captain Swinton, 100 guineas a month; Messrs. Brodie and Lutyens, 350 guineas and 300 guineas a month respectively. The draft of the agreement which the Government of India proposed to make with the selected architects for the new Delhi, Mr. Lutyens and Mr. Baker, had not yet been received from India, but it was understood that payment would be by commission. It was not possible at the present stage to state the estimated amount. In answer to a further question as to whether Mr. Lanchester when visiting Delhi was asked to confer or co-operate with the Town Planning Committee, Mr. Montagu said Mr. Lanchester arrived in India a few days before the Town Planning Committee left for England. Under instructions from the Viceroy, he met the Committee at Delhi, and informed himself fully about the scheme for laying out the new capital which they had prepared. His advice and assistance regarding the scheme was rendered at a later stage, and to the Government of India. In further reply to Mr. Newman, Mr. Montagu said that for the permanent Government offices in the new capital, land would be compulsorily acquired on terms which ensured a fair price. For temporary offices very little land had been bought outright, and the Government expected to recover the cost by resale.

### *First Garden City, Limited.*

Captain Clive asked the Chancellor of the Exchequer whether he was aware that the First Garden City, Ltd., were unable yet to pay a dividend, and that this was to a large extent due to the uncertainty as to their liability from Increment and Undeveloped Land Duties; that whatever liability there might be from these duties had been entirely created by their own enterprise in creating a model city on what was ten years ago agricultural land; and that during those ten years no interest had been paid on the capital contributed by the pioneers of the enterprise; and if he would introduce legislation to prevent this check on the development of garden cities.

The Chancellor of the Exchequer said:



have heard from the Chairman of the East Garden City, Ltd., who states that it is ridiculous to suggest that the Land Duties are in any way responsible for their having paid a dividend hitherto.

Captain Clive asked whether the Chancellor was aware that in the last report, and in the report of the year before last, it was stated that the company were not in a position to pay a dividend because they thought it wiser to wait until they saw the result of the Land Duties.

The Chancellor of the Exchequer: That is a very different thing. I have read the actual words written to me by the Chairman himself.

#### *The New Bedford College Buildings.*

Captain Jessel asked the President of the Board of Agriculture whether he would state what were the superficial and cubic space of the original villa of Bedford College, Regent's Park, and its outbuildings, and also what were the superficial and cubic space of the new college buildings.

Mr. Runciman, in a printed answer, stated: The superficial area and cubic space of the original villa and its outbuildings were approximately 23,288 square feet and 1,230 cubic feet respectively, and the superficial area and cubic space of the new college buildings are about 49,586 square feet and 1,875,196 cubic feet respectively.

#### *Ancient Monuments Bill.*

The Committee stage of the Government's Ancient Monuments Consolidation and Amendment Bill has been fixed for May 28th. Meantime another Bill to consolidate and amend the law relating to ancient monuments has been presented in the House of Commons by Mr. Bennett-Oldrey and read a first time.

## DEVELOPMENT OF THE ORGAN.

Dr. Alan Gray read a paper on "The Modern Development of the Organ" before the Musical Association at the King's Room, Messrs. W. Broadwood and Sons, Conduit Street, on April 15th. He said that at the organs of the eighteenth century showed little advance on those of Smith and Harris. The York organ of 1830, with the first 32 ft. metal, wood, and reed stops in England, was the first advance, and Birmingham a few years later with the first tuba, and an improved scheme, was a further step forward. The great Liverpool instrument of 1855 was a distinct landmark in the history of the subject. In tonal matters more attention was now paid to the absolutely regular voicing of the stops, and also to the production of treble of adequate power. Liability to weakness in the treble had always been a difficulty to builders, and as organs increased in size and power the solution of the problem was rendered more urgent. English organs of the nineteenth century were particularly defective in this respect. A feature of modern organs was the avoidance of duplication of tones. This was obviously right, but there was a danger of lack of cohesion, if the system were carried too far. Another important characteristic was the provision of complete stop mixtures. The great increase of stops in the pedal organ was a noticeable feature. This was owing to the extensive employment of the borrowing of soft manual 16ft. stops, and the extension upwards of the dependent pedal stops. There was practically no objection to these methods, and the advantages in the securing of increased variety in the basses, in economy, and in the saving of space were overwhelming. As to the size of organs, the late Mr. Best said that an organ of fifty

to sixty stops was large enough, and the remark was still true—at all events if the limit was increased to eighty.

## FIRE PREVENTION NOTES.

### *Experiments on the Combustion of Dust.*

As the most extensive and most expensive fires occur in factories, and as the origin of such outbreaks is frequently obscure, any scientific ascertainment in this direction must necessarily possess considerable value and importance. Much interest therefore attaches to the report recently issued on "The Inflammability and Capacity for Transmitting Explosions of Carbonaceous Dusts Liable to be Generated on Premises under the Factory and Workshop Acts," in which Mr. R. V. Wheeler, D.Sc., the chemist attached to the Explosions in Coal Mines Committee, details the results of experiments made with sixty-six samples of carbonaceous dust, taken by factory inspectors from beams, ledges, or other projections in factories.

### *Dangerous Dust.*

Two methods of testing were employed—one for the purpose of discriminating between harmless and dangerous dusts, the other with the intention of ascertaining the temperatures at which inflammation of the dangerous dusts takes place readily. As a result of these tests, it has been found possible to divide the dusts into three classes. Class I. comprises dusts which ignite and propagate flame readily, the source of heat required for ignition being comparatively small, such, for example, as a lighted match. In this class are—sugar, dextrine (calcined farina), starch, cocoa, rice meal and sugar refuse, cork, unextracted soya bean, wood flour, malt, oat husk, grain (flour-mill), maize, tea, compound cake, grain (grain storage), rape seed, cornflour, flour (flour mill), chicory, briquette, gramophone record, extracted soya bean. These dusts are arranged (roughly) in order of their inflammability. In this class, sugar, dextrine, starch, and cocoa (the sample of cocoa dust tested appeared to have had sugar mixed with it) are the most dangerous, sugar exceptionally so. Sugar ignites when projected as a cloud against a surface heated to below red heat, and, when ignition has taken place, the flame travels throughout the dust-cloud with great rapidity.

### *Dusts of Easy Ignition.*

Class II. includes dusts which are readily ignited, but which for the propagation of flame require a source of heat of large size and high temperature (such as an electric arc), or of long duration (such as the flame of a Bunsen burner). These are—copal gum, leather, "dead" cork, coconut oil milling, rice milling, sawdust, castor-oil meal, oil cake, offal grinding (bran), grist milling, horn meal, mustard, shoddy, shellac composition. Of the dusts in this class, the samples of shoddy, being of a fluffy nature, did not readily form a cloud in air, but they contained a sufficient quantity of fine material to render them dangerous when in bulk. The sample of shellac composition contained over 60 per cent. of incombustible matter, but was inflammable; a reduction in the quantity of incombustible matter present would render it dangerous.

### *Comparatively Uninflammable Dusts.*

Class III. comprises dusts which do not appear to be capable of propagating flame under any conditions likely to obtain in a factory, either (a) because they do not

readily form a cloud in air, or (b) because they are contaminated with a large quantity of incombustible matter, or (c) because the material of which they are composed does not burn rapidly enough. These are as follows: Organic ammonia, tobacco, spice milling, drug grinding, cotton seed, cotton seed and soya bean, bone meal, coal (foundry blacking), lamp-black, sack cleaning, retort carbon, rape seed (Russian), blacking, grain cleaning, charcoal, foundry blacking, brush carbon, stale coke, plumbago, bone charcoal, mineral and ivory black. The first ten samples are all more or less readily inflammable, but they showed no signs of being capable of propagating flame. It is possible, however, that other samples of the same materials, less contaminated with incombustible matter, or in a finer state of division, might be found capable of propagating flame. The classification of these dusts as harmless refers, therefore, to the particular samples tested only. The remaining dusts can be definitely regarded as harmless materials.

### *Inflammable Gases from Dust.*

Dr. Wheeler states that in the case of the majority of the dusts tested, inflammable gases can be evolved from them by decomposition at quite low temperatures. If, therefore, any particular dust were allowed to remain in contact with a surface heated to, say, 800 degrees Centigrade for a length of time sufficient to evolve inflammable gases in quantity capable of forming an inflammable mixture with the surrounding air, this mixture of gas and air should ignite, and it might, by its combustion, provide sufficient heat to cause the inflammation of an adjoining layer of dust and air. In this manner, propagation of inflammation should take place throughout the extent of the dust cloud. Under suitable conditions, dusts that evolve such gases as methane, ethane, ethylene, carbon monoxide, and hydrogen, should be capable of being inflamed at a temperature as low as 500 degrees or 600 degrees Centigrade. Sugar and dextrine, which appear as the most readily inflammable of all the dusts, ignite at 540 degrees Centigrade, or well below red heat.

### *The Moral of the Investigation.*

Dr. Wheeler's investigations definitely confirm and put beyond question the impression that many fires in factories must have arisen from what is somewhat inaccurately termed "spontaneous combustion." In the light of such definite knowledge as he has now made available, it should be possible to take steps that would meet the conditions which he has revealed. It is very certain that in places where these inflammable dusts must inevitably accumulate, they should at all events not be afforded a lodgment on any material that is not fire-resisting, or that is inaccessible for frequent cleaning. Materials there are in plenty which could be so employed as to afford a much higher degree of protection than is possible without these safeguards, and Dr. Wheeler's report emphasises the need for making their adoption compulsory. That it will immediately have this effect is beyond hope, but such an authoritative document should at least serve an excellent purpose by strengthening the hands of the architect who finds any difficulty in persuading the building owner of his duty in respect of the ethics of the dust. Further, the report is an excellent argument for the constant employment of the vacuum cleaner, which now assumes fresh importance as the enemy of fire, as well as of uncleanness and disease.



## COMPETITIONS.

### *Cottage Hospital for Staines, Middlesex.*

In an open competition for this work, the design submitted by Mr. Leslie T. Moore, A.R.I.B.A., of Gray's Inn, W.C., has been selected, and the architect (who has now supplied the winning designs in four cottage hospital competitions) has been instructed to proceed with the working drawings.

### *Glasgow Municipal Buildings Extension.*

Five sets of designs were examined by the assessor, Mr. J. J. Burnet, LL.D., in the final competition for the proposed extension of Glasgow Municipal Buildings, and he placed first the design of Messrs. Watson and Salmond, I.A., of Glasgow. The Corporation Buildings Committee have accordingly recommended that this firm be appointed to carry out the work.

### *R.I.B.A. Prizes and Studentships, 1914.*

Particulars of the above (in pamphlet form, price 3d.) have now been issued by the Institute. For the Essay Medal and 25 guineas competitors are expected to make a useful contribution to knowledge by accurate research, so that the essays can be accepted as authoritative statements on the subjects dealt with. The essays may also be submitted by candidates in the Final Examination as their thesis. The subject set for the Soane Medallion and £100 is "An Official Country Residence for a Royal Personage in the United Kingdom," the design to include the laying-out of the grounds. For the Tite Prize the subject is "An Imaginative Composition for an Important Fountain in the Italian Style," in perspective; and for the Grissell Prize the subject is "A Four-storey Dock-side Warehouse." Special attention is directed to the new Travelling Studentship, to be known as the "Henry Jarvis," tenable for two years at the British School at Rome. Candidates for this must be British subjects, under thirty years of age at the date of entry for the Final Competition and must be either Associates or registered students of the Institute. The competition is in conjunction with that for the scholarship (tenable for three years at the British School at Rome) offered by the Royal Commissioners for the Exhibition of 1851, and will be conducted on the premises of the R.I.B.A. under the direction of the Faculty of Architecture of the British School at Rome. Candidates must be prepared to go through two competitions, of which the Final will be held in the autumn, about three months after the first competition. Candidates will be entitled to compete more than once in the First Competition until they have gained the studentship or are debarred by the age limit. Three months will be allowed for the preparation of designs, reckoned from the date of the publication of the subject with its conditions. From the candidates who have competed in the First Competition the Committee of Examiners will select not more than ten candidates for the Final Competition. The subject for the latter will be set by the Committee of Examiners, and will be announced in the room on the opening of the first sitting of the competitors. The competition will begin at 10 a.m. on a Monday morning and continue till 1 p.m. on the Saturday of the week following. Competitors will be required on the first day to make a sketch design, which will be covered with a sheet of tracing paper sealed down in the compartment by the Moderator at the end of

the first day. In his finished design the competitors will be required to adhere substantially to the sketch design. The candidate placed highest in the Final Competition will be awarded the Jarvis Studentship, unless he elect to take the Commissioners' Scholarship above referred to. In the latter case the Jarvis Studentship will be awarded to the candidate placed next on the list. The scholarship and the studentship will not in any case be awarded to the same candidate.

## LIST OF COMPETITIONS OPEN.

MAY 31.—LAY-OUT OF PARK, BACUP.—The Corporation invite designs for laying out the Moorlands and Stubble Estates as a public park. Premiums £40, £20, and four of £10. Summary of conditions in our issue for April 16th.

MAY 31.—"IDEAL HOMES" EXHIBITION.—COTTAGES AND BUNGALOWS.—Designs are invited for (1) A workman's detached cottage; (2) a pair of workmen's semi-detached cottages; and (3) a bungalow for four single persons. The prize of £50 will be given in each case. Assessor, Mr. Leonard Stokes, F.R.I.B.A. Summary of conditions in our issue for February 12th.

JUNE 2.—STREET IMPROVEMENT SCHEME, BLACKBURN.—The Corporation invite designs for street improvement scheme for Blackburn. Premiums £100, £50, and £25. Assessor, Professor Adshead, F.R.I.B.A. Conditions (of which a summary was given on page 443 of our issue for April 23rd) from Town Clerk, Municipal Offices, Blackburn.

JUNE 7.—HOSTEL FOR MALE STUDENTS, EXETER.—Mr. Edwin Cooper, F.R.I.B.A., is assessor. Particulars (one guinea, returnable), H. Lloyd Parry, Town Clerk, Exeter. Summary in our issue for April 2nd, and plan of site in the issue for April 9th.

JUNE 14.—BATHS, NEWCASTLE.—The Corporation invite designs for baths at Benwell, Walker, and Heaton. Assessor, Mr. Herbert W. Wills, F.R.I.B.A. Conditions, with site plans, obtainable (postal order 1s.) from A. W. Oliver, Town Hall, Newcastle-on-Tyne. Summary in our issue for April 23.

JUNE 14.—MUNICIPAL BUILDINGS, DEVONPORT.—The Corporation invite designs for municipal buildings and a guildhall. Premiums £350, £150, and £100. Assessor, Mr. Ernest Newton, A.R.A., F.R.I.B.A. Conditions (£2 2s., returnable) from R. J. Fittall, Town Clerk, Municipal Offices, Devonport, to whom designs are to be sent. Summary and plan of site in our issue for March 12th.

JUNE 19.—LAYING OUT ESTATE, NEWCASTLE.—Corporation invite designs for laying out a portion of their Walker Estate. Premiums £50, £30, £20. Particulars (one guinea, returnable), A. W. Oliver, Town Clerk, Newcastle-on-Tyne. Summary in our issue for April 16th.

JULY 1.—ROYAL PALACE AND LAW COURTS, SOFIA.—Particulars of this competition are obtainable from the Commercial Intelligence Department, Board of Trade, Basinghall Street, E.C.

No date. ARCHITECTURAL STUDENTS' COMPETITION, HAMPSHIRE AND ISLE OF WIGHT.—Hampshire and Isle of Wight Association of Architects offer prizes of £3 3s., £2 2s., and £1 1s. for the best sets of measured drawings and sketches of historic architecture in Hampshire and the Isle of Wight. Entrance fee, 2s. 6d. for non-members. Particulars from the Hon. Sec., Bargate Chambers, Southampton.

## PROJECTED NEW WORKS.

### *A Vast Improvement Scheme for Bradford.*

The Midland Company have decided to take their main line to Scotland right through the centre of Bradford. The Corporation propose to make a wholesale clearance of dilapidated property and narrow streets, and to substitute by the buildings and thoroughfares worthy of headquarters of the woolstapling industry. They are asking Parliamentary sanction by means of a Bill which came before the Committee of the House of Lords recently. The original estimate of the cost of carrying out the improvement was £1,138,550, but this has been somewhat reduced by the exclusion of certain properties originally comprised in the plans.

### *Cottage Housing Scheme, Glasgow.*

A cottage housing scheme is to be proceeded with by the Glasgow Corporation. The plans prepared by the city architect give 240 houses. Of these 80 will be three apartments, with scullery and bathroom, built in blocks, each consisting of four dwellings, and 160 will be of four apartments, built in terraces, each comprising 10 houses. The buildings will be two storeys in height, of brick, faced externally with rough-cast on the upper floor and red facing brick on the ground floor. Each house will have an average garden area of 130 square yards. The estimated cost is £60,295, and the estimated rental—80 houses of three apartments at £15 15s., and 160 of four apartments at £18, is £4,140. The following deductions are made: 25 per cent. of gross rental for landlord's rates, repairs, and factorage, £1,035; 3½ per cent. on cost of building (£52,000), for interest, £1,820; 12 per cent. on cost of buildings for redemption, £866 13s. 4d.; 3½ per cent. on cost of site, including roads and sewers (£8,295) for interest £290 6s. 6d.; and 1¼ per cent. on cost of site, including roads and sewers for redemption, £103 15s., a total of £4,115 14s. 10d., leaving a balance of £24 5s. 2d. The buildings are calculated to be redeemed in 60 years, and the site in 10 years, by equal instalments.

### PROJECTED NEW WORKS IN LONDON.

The Building Acts Committee of the London County Council have recommended consent with respect to applications under the London Building Acts 1894 to 1909 as follows:

*Deptford.*—Erection of a building on the western side of Foxberry Road, Brockley, on the application of Mr. J. S. Heatley.

*Finsbury, Central.*—Erection of a one-storey shop in front of No. 1, Hermon Street, Finsbury, on the application of Messrs. Tasker and Wright, on behalf of Mr. H. S. Nunn.

*Southwark, West.*—Erection of two additional storeys to the southern division of the premises of Messrs. Epps and Co., Holland Street, Southwark, on the application of Messrs. E. T. and S. Hall, on behalf of Messrs. Epps and Co.

*Wandsworth.*—Erection of a building on the northern side of Harberson Road, Balham, on the application of Mr. J. H. Beare.

*Woolwich.*—Erection of one-storey shops in front of Nos. 39 and 41, Lakeland Road, Plumstead, on the application of Mr. A. H. Hutton, on behalf of Mr. M. C. Head.



## NEWS ITEMS.

*Exhibition of French Architectural Drawings.*

There is now on exhibition at the Architectural Association's premises in Tufton Street, Westminster, a selection of French architectural drawings and work by students of the Ecole des Beaux-Arts, Paris. The exhibition will remain open daily from ten to four until May 17th.

*The Admiralty Arch.*

The question of the approach to the Admiralty Arch at the end of the Mall is being considered by a small joint committee representing the Office of Works, London County Council, and the Westminster City Council. Mr. Reginald Tomfield is one of the Office of Works representatives on the committee.

*Remodelling St. Petersburg.*

The Permanent Committee of the Russian Councils of Architects has submitted to the Imperial Academy of Art a project for the transformation and development of St. Petersburg on the model of modern towns of Western Europe. A special committee has been appointed having particularly in view the remodelling of the centre of the city and the treatment of new buildings according to a symmetrical scheme.

*The Development of Southend.*

At Southend-on-Sea new sewage disposal works are being constructed, at an estimated cost of £160,000, from the designs of the borough engineer, Mr. G. J. Elford. A refuse destructor costing £11,000 is being built, and a boulevard is being constructed at Southchurch and Thorpe Bay in connection with the extension of the railways. It will be 100 ft. in width and nearly two miles in length, the esplanades and marine drives costing £150,000.

*A Stupendous Suspension Bridge.*

A new suspension bridge which is to connect New Jersey and New York will be 300 ft. long, 175 ft. above the river Hudson, and 204 ft. wide, while the steel towers from which the cables will be hung will be 600 ft. in height. The central span will be 2,800 ft. long. There will be two tracks for subway trains, two for elevated ways, and four for tramcars, with two ft. driveways and two 80 ft. sidewalks. At all this, the cost is estimated at not more than £800,000.

*An Enquiry into the Cost of the Law Courts at Rome.*

The report of the Parliamentary Commission appointed to inquire into the amount of money spent on the building of Law Courts at Rome, just published, shows that certain Deputies have been guilty of more or less incorrect conduct in being favoured or supported the pretensions of the firm of contractors responsible for the heavy cost of the building. The Commission calls on the Government to take such steps as are necessary to prevent the possible recurrence of such a state of things.

*The Anglo-German Exhibition.*

The Anglo-German Exhibition is to be held at the Crystal Palace from May 10th to September 27th next, and will be open daily (except Sundays) from 10 a.m. to 6 p.m. Among the exhibits for which provision has been made are the following: Machinery and tools, lighting, furni-

ture, ceramics, painting and sculpture, brass and metal work, wood carving, antique furniture, etc. Cash prizes, amounting in all to £2,500, will be given for the best decorated stands. Full particulars can be obtained from the Administrators, Anglo-German Exhibition, Empire House, 175 and 176, Piccadilly, London, W.

*Baths in Elementary Schools.*

At last week's meeting of the London Education Committee the proposal to provide warm baths in elementary schools was debated. It was pointed out by one member that such baths were becoming almost universal on the Continent. Many education authorities in this country had also introduced them, Liverpool having provided baths for 8,000 children. In the end twenty members voted for the proposal and twenty against it. It was therefore not carried.

*New Companies.*

The following new companies have recently been registered:—

William Cubitt and Co. (South Africa), Ltd. Capital £70,000. Registered office, 258, Gray's Inn Road, London, W.C.

Ideal Cottage Builders, Ltd. Capital £2,000. Registered office, 36, Gracechurch Street, London, E.C.

The Cheltenham Concrete and Engineering Co., Ltd., was registered on April 2nd with a capital of £1,500. Registered office, Lansdown Crescent Lane, Cheltenham.

Messrs. George Rome and Co. (Glasgow), Ltd., is the title of a new company which was registered on April 4th with a capital of £10,000.

*Lath Rending.*

In their first quarterly progress report on timber research work in connection with the School of Forestry, Cambridge University, Mr. E. Russell Burdon, M.A., and Mr. A. P. Long, B.A., refer briefly to the lath rending industry. They state that this industry, formerly of considerable importance, is still carried on to a limited extent both at Woburn Sands and at King's Lynn. "It was astonishing to find that the raw material from which the laths are now made consists chiefly of timber imported from the Baltic, and that even in an inland county like Bedfordshire such business can still be carried on."

*Acetylene Gas in Places of Public Entertainment.*

The London County Council, on January 28, 1902, and January 30, 1906, made regulations governing the use of acetylene gas in premises licensed by the Council for public entertainments. No. 1 of these regulations provides that under no circumstances will the production or use of highly compressed or liquefied acetylene be permitted, but that dissolved acetylene may be used under the conditions set out in the order of the Secretary of State, No. 6, made under the Explosives Act, 1875. The attention of the Theatres and Music Halls Committee has now been drawn to the fact that the order of the Secretary of State referred to has been superseded by an order issued in August, 1912, which deals with the compression of acetylene into porous substances. The regulations should therefore, if retained, be amended, but the Committee are advised that there is no necessity for these regulations, as acetylene gas is only occasionally used, and then only from portable cylinders in connection with stands and processes at

trade exhibitions. The Committee think, therefore, that the regulations should now be withdrawn, and that any proposal that may be submitted to the Council for a system of lighting involving the use of exposed flames should be considered on its merits. They recommend that the regulations made by the Council on January 28, 1902, and January 30, 1906, regarding the use of acetylene gas in premises licensed by the Council for public entertainment be repealed.

## OBITUARY.

*The Late Mr. William Flockhart.*

At the meeting of the R.I.B.A. held on April 21st, sympathetic reference was made by the hon. secretary to the death of Mr. William Flockhart, who, he said, had always taken an active share in the work of the Institute. He had been seven times elected member of Council, and in that capacity had served for three years on the Finance Committee, acting for a time as its chairman. He was also for several years a member and for the past two years vice-chairman of the Art Standing Committee. Mr. Flockhart's artistic gifts were well known. He had left his mark, especially on our West End architecture, in a number of charming buildings, business premises, and private houses, on Bond Street, Hill Street, Hertford Street, and elsewhere in that neighbourhood. As architect to the Union Castle Steamship Co. he made the designs for the remodelling, furnishing, and decoration of the Royal quarters on the Balmoral Castle for the voyage of the Duke of Connaught and suite in 1910. He was one of the architects selected by the London County Council to submit designs for the façades of buildings fronting the Strand and Aldwych, and received the second premium awarded in this competition. He was also one of the nine architects nominated to take part in the final competition for the Wesleyan Church House, and was one of the eight architects selected to submit designs in the final competition for the London County Hall. The Hon. Sec. moved the following resolution: That the Institute desires to record its deep regret at the death of its esteemed and distinguished Fellow and Member of Council, William Flockhart, and at the loss the Institute and Architecture have sustained thereby; and that a message be transmitted on behalf of the Institute to his widow and family sympathising and condoling with them in their bereavement. The resolution was seconded by Mr. George Hubbard, and supported by Professor Blomfield, all present at the meeting rising from their seats.

The decease was also announced of Francis George Ashwell, Licentiate.

*Mr. Walter John Fletcher, F.R.I.B.A.*

The death is announced of Mr. Walter John Fletcher, F.R.I.B.A., who had been for a long time county architect and surveyor for Dorset, in which county he had erected many schools, some almshouses, the Church House at Wimborne Minster, etc. He had also done some good ecclesiastical work. He was elected A.R.I.B.A. in 1882, and Fellow in 1885, and at the time of his death had reached the age of seventy.

*Mr. William Mortimer.*

Mr. William Mortimer, architect and surveyor, of Lincoln, who died February 7th, aged seventy-one years, left an estate which has been proved at £7,008 gross.



## LEGAL.

### *Damage to Adjacent Premises.*

In the Chancery Division, on April 29th, Mr. Justice Sargant delivered judgment in the action of Messrs. Konrath, bakers and confectioners of 185, Blackfriars Road, Southwark, against Messrs. Sidney Straker and Squire, Ltd., constructors of motor vehicles, etc.—Plaintiffs held their premises on a repairing lease for thirty years from 1889, and they alleged that the vibration from defendants' machinery, and from the testing of motors, had damaged their premises to such an extent that plaintiffs had been compelled, by order of the London County Council, to execute repairs costing about £535, in addition to £29 for surveying fees. Plaintiffs' main building was probably more than a hundred years old, and a back addition was perhaps later by some thirty or forty years. Defendants erected their garage on an adjacent site in 1906.—Plaintiffs contended that if it had not been for the vibration, which had accelerated the natural effects of time, their building would have outlasted the term of their lease.—His lordship allowed plaintiffs £300 in respect of the cost of repairs and £20 for surveying fees. Judgment was therefore given for these amounts, and taxed costs.

## SOCIETY ELECTIONS.

### *Manchester Society of Architects.*

Manchester Society of Architects, at a meeting held on April 30th, elected Mr. John Brooke, F.R.I.B.A., as president, Mr. F. B. Dunkerley, F.R.I.B.A., and Mr. F. P. Oakley, A.R.I.B.A., as vice-presidents; Mr. Isaac Taylor, F.R.I.B.A., as hon. secretary, and Mr. J. T. Halliday, A.R.I.B.A., as assistant hon. secretary; the new members of Council being Messrs. J. W. Beaumont, John Ely, H. Q. Farmer, W. C. Hardisty, Edward Hewitt, P. D. Lodge, Paul Ogden, C. Paterson, G. Sanville, J. H. Sellers, J. H. Woodhouse, and P. S. Worthington.

### *Architectural Association of Ireland.*

At the annual general meeting of the Architectural Association of Ireland, held on April 29th, at 15, South Frederick Lane, Dublin, Professor A. W. Scott, A.R.I.B.A., was elected president; Mr. Frederick Hayes, M.R.I.A.I., vice-president; Messrs. H. Allberry and H. J. Lundy, hon. secretaries; Mr. T. F. Strahan, hon. treasurer; Mr. T. E. Cullimore, hon. librarian.

### *Institution of Civil Engineers.*

At the annual general meeting of the Institution of Civil Engineers, held on April 29th, Mr. Anthony George Lyster, M.Eng. (London), was elected president, and Mr. Benjamin Hall Blvth, M.A., Mr. John Strain, Mr. George Robert Jebb, and Mr. Alexander Ross, vice-presidents.

### *Association of Clerks of Works (H.M. Office of Works).*

An Association under the above title has been formed by the clerks of works who are engaged upon the new buildings for H.M. Office of Works throughout England, Scotland, and Wales, with Mr. L. G. Rawlings as president, and Mr. W. T. Bowman, 6, Roman Place, Roundhay, Leeds, as hon. secretary.

### *Sheffield Society of Architects and Surveyors.*

At the annual general meeting of this association, the election of officers resulted as follows: President, Mr. A. F. Watson;

vice-president, Mr. C. B. Flockton; hon. treasurer, Mr. R. W. Fowler; hon. secretary, Mr. James R. Wigfull. It was decided that the following should constitute the Council: Messrs. W. G. Buck, F. E. P. Edwards, J. R. Hall, C. F. Innocent, H. L. Paterson, H. I. Potter, C. S. Sandford, E. Winder, and F. H. Wrench.

## TRADE AND CRAFT.

### *Fire Tests of "Copperlite" Glazing.*

Three window openings filled in with "Copperlite" glazing by Messrs. Hayward Bros. and Eckstein, Ltd., were tested by the British Fire Prevention Committee last February, with results which are here briefly summarised:

Opening No. 1 was filled in with a teak frame divided into two lights, into which the glazing was fixed with teak beads. In opening No. 2 the glazing was bedded in a brick reveal, and was in two lights, with a concrete transom between. Opening No. 3 was filled in with a steel frame divided into two lights, into which the glazing was fixed by angle-iron stops.

The sight size of opening No. 1 was 2 ft. 3 in. by 4 ft. 7½ in., with a 2¼-in. reveal all round, into which a 4¼-in. by 3½-in. teak frame was inserted, with 4½-in. by 4¼-in. transom dividing the frame into 2 ft. by 2 ft. lights. The "Copperlite" glazing was stopped in by 1½-in. by 1½-in. fillets, and fixed with screws and asbestos putty. The sight size of opening No. 2 was 2 ft. by 4 ft. 9 in., divided into two lights each 2 ft. by 2 ft. by a 6-in. by 9½-in. concrete lintel. Opening No. 3 was 2 ft. 4 in. by 4 ft. 6 in., with an angle-iron frame and tee-iron transom dividing the glazing into two lights.

In the first test, which was with a fire of sixty minutes' duration, the temperature reaching 1500 deg. Fahr., fire did not pass through the glazing of any of these openings, and in each case the glass remained in position after the application of water, which did not pass through it.

In the second test, in which the glazing was in all respects similar to that in the first test (fire of ninety minutes' duration, the temperature to reach 1500 deg. Fahr.), the glass in each opening remained in position, and neither fire nor water passed through. As in the first test, no squares of the glazing were broken, although, under the terrific heat, the glass was cracked and sintered, but not sufficiently to admit fire or water, and as a result of this second severe and convincing test, Class A was obtained, the temperature recorded (1750 deg. Fahr.) being the highest yet attempted with this class of material.

### *Metal Casements.*

The growing vogue of metal casements is easy to understand, their advantages over woodwork being clearly obvious. They can be made perfectly weathertight, they are fire-resisting, do not warp or rot, are supremely strong and durable, have a light and elegant appearance, and can be fitted with many ingenious mechanical contrivances that are inapplicable to woodwork. For large and important buildings metal casements are used as a matter of course, and they are rapidly making their way in domestic work and even for cottage property. For remotely situated country houses they are peculiarly applicable, not only because they are fire-resisting, but because they are also to a great extent burglar-proof. Give the enterprising burglar time and opportunity and

nothing can keep him out; but when the breaking-open of woodwork is a matter of a few minutes, the metal casement well locked inside, opposes to him a formidable obstacle, the negotiation of which would occupy more time than he usually has to spare.

Messrs. Henry Hope and Sons, Ltd., Lionel-street, Birmingham; 59, Berners Street, W.; 21, Spring Gardens, Manchester; and 134, St. Vincent Street, Glasgow, have issued a fine catalogue (pages, 15 in. by 10 in.), to which they have imparted a distinctly architectural value by including in it a large number of half-tone illustrations of buildings by eminent architects. The buildings are of various classes, and by their diversity they demonstrate the wide range of service the metal casement and the reading with which it adapts itself to varying style and circumstance. A large variety of casements and gearing are shown also diagrammatically and otherwise in this fully illustrated catalogue.

Metal windows for public buildings, the firm point out, also windows for large shopping premises, and works of monumental character, are usually of special design and provide a legitimate field for architectural enrichment. Messrs. Hope are quite satisfied that work of this character is "to have a great future in England," and they are prepared to give expert advice upon the design of such windows and to assist architects with drawings, specifications, etc., for any scheme of penetration, however elaborate. For the highest class of work they recommend solid bronze as being imperishable, as presenting a beautiful surface and improving in colour with age.

### *"Pudlo" Waterproofing Powder.*

"Pudlo," the patent waterproofing powder, has been specified by Mr. F. Harrison, architect, of Accrington, for use in the Children's Home now in course of erection at St. Annes-on-Sea. This building is to be finished in rough-cast, a surface which on account of its uneven quality, is apt to retain moisture unduly, and the inclusion of a very small percentage of "Pudlo" in the cement was considered necessary.

Further evidence of the general utility and adaptability of "Pudlo" is afforded by its inclusion in the cement used for the repointing, recently, of the Whitsand Bay Hotel, at Port Winkle, Cornwall—a large building standing in a very exposed position.

## R.I.B.A. MEMBERSHIP.

The following tabular statement, taken from the annual report of the R.I.B.A. which was presented at the meeting held on Monday evening last, shows the present subscribing membership of the Institute as compared with corresponding periods for 1910, 1911, and 1912:—

Year.	Fellows.	Asso- ciates.	Hon. Asso- ciates.	Total.
1910 .....	874	1,431	48	2,353
1911 .....	862	1,509	55	2,426
1912 .....	859	1,581	56	2,496
1913 .....	847	1,630	54	2,531

During the official year, since the last annual general meeting, 30 Fellows, 10 Associates, and 1 Hon. Corresponding Member have been elected. The period for the election of Licentiates came to an end on June 24th, 1912, and there are now 2,101 Licentiates on the roll. Twenty-one Licentiates have passed the special examination qualifying for election to the Fellowship, and ten have been duly elected.



THE  
ARCHITECTS' & BUILDERS'  
JOURNAL.

Wednesday, May 14, 1913.

Volume XXXVII. No. 957.

No. 33.



(From Piranesi.)



*From a Water-Colour Drawing by Harold C. Mason.*

(See page 514.)



# THE ARCHITECTS' & BUILDERS' JOURNAL.

MAY 14, 1913.

CAXTON HOUSE, WESTMINSTER.

VOLUME 37. No. 957.

## Architectural Models.

If one were asked: "What is the most serious defect in contemporary architectural design?" it would not be difficult to give an answer. Ingenuity in planning, versatility in style, variety and skill in detail—all these we have in plenty. But the co-ordinating power, the ability to design something which in its entire proportions and grouping is indisputably great, that is a rare quality to find.

While one recognises that the causes of this short-coming are very deep, and not to be removed by any adventitious aids or "tips" for the designer, yet we may find that there are certain conventions which militate against a fine sense of grouping, and some changes in architectural methods might do much to keep the architect continually conscious of the supreme merit of his *mass* being properly disposed.

The large majority of our public buildings are won in competition, and although architecture is essentially plastic art, these competitions are decided from a more or less complete series of drawings. Now, scale drawings are an admirable means of determining the plan of a building, and are of course the only instrument by which the construction can be fully shown, but it is open to doubt whether even to the trained and experienced architect they can convey a real idea of the grouping and scale as these qualities will impress the spectator of the finished building. The difficulty is increased by the type of drawing and the quality of design which most usually find favour with the assessors of competitions, which interact on one another to their mutual disadvantage. Geometrical drawing tends to be hard and unsympathetic unless drawn with a thicker line than the scale properly affords, and the thick-line drawing is best adapted to a classical treatment in which the detail is broader and heavier than in, say, the earlier types of the Renaissance. The method of drawing alone seems to be sufficient to induce designers to deny themselves excursions into lighter and more buoyant paths of imagination, but it acts as a more serious drawback to intelligent composition. For an elevation drawn in this manner may "compose" quite admirably, and yet be completely deceptive. No adaptation in line being allowed for the varying values, the compensating and balancing features on elevation lose these qualities in execution; and the conventional perspective from only one point of view—too often forced into compliance with preconceived ideas—is a questionable check.

The remedy for this state of things is to require scale models of every design submitted in competition. It is an extraordinary reflection to think that whereas in similar competitive work in engineering or in the sister art of sculpture, models are a necessary requirement, even though in many cases the subject is infinitely smaller and involves the expenditure of far smaller sums of money than in most of our large buildings, yet in architecture, the most monumental form of design, adjudication is made upon drawings alone. Models were largely used at the time of the Italian

Renaissance, and have been always recognised as the best method of testing the quality of a design. Why, then, is their help so carefully avoided in modern architectural competition? In actions at law in which structures are in question, models are commonly exhibited, as affording the best means of conveying a correct impression as to the matters at issue; and it has been recorded in this journal that an American architect recently erected *in situ* a full-size model of a portion of a building he was designing.

The comparative disuse of the model makes it of course more difficult to reintroduce, and it would temporarily increase the strain on competitors. But ultimately, when architects had become as used to it as sculptors are, it would be a relief. The actual work of design would still be done by rough sketch plans, but it would not be necessary to prepare the elaborate finished drawings which are now expected from competitors. A carefully made model, divided horizontally in one place to show the principal plan, would be quite sufficient for the assessor to grasp the salient features of the design. Moreover, it would make plain the all-important question of the harmony and relationship between plan and superstructure. Even in large competitions a row of 100 or more models, ranged in a long hall (such as should certainly be provided at the Royal Institute), would give the assessor a far greater opportunity for effective comparison than a similar number of stretchers. And the cost of models need by no means be excessive. There are many materials ready to the hands of those who would construct their own models, and the task is not difficult, some slight experience only being necessary to discover methods which are astonishingly speedy and cheap. For others there are now many firms who will make models, and a larger demand would certainly make for a reduction in present prices. And if the model were allowed as a substitute for a large number of expensive drawings it should not entail much additional cost.

The problem of storing models is of course a more serious one than that of preserving drawings. The objection, however, cuts both ways. Those really worthy of preservation are much less likely to be lost sight of than a roll of drawings, and are much more useful for exhibition, while others could be destroyed, as is the practice among sculptors and engineers. The question of exhibition, however, opens up very interesting possibilities. Why should architecture, the chief of all the plastic arts, be content with an exhibition at Burlington House of drawings, the appearance of which fails altogether to attract the visitor who has no technical training? Sculpture has a fair place at the Royal Academy, and why not architecture? A hall of fine models of the best work of the year would attract the public and arouse their interest, giving them a tangible idea of the progress of the art. Moreover, it would be a great education to the profession in the matter of that highest element in design, the handling of masses and the general proportion and rhythm of all the parts of a noble architectural fabric.



#### French Architectural Drawings.

THE exhibition of French architectural drawings which the Architectural Association have organised is admirable from many points of view, but more especially because it affords the opportunity of studying a comprehensive series of designs submitted at the Ecole des Beaux-Arts, from the entrance examination designs to those for the final diploma. The series comprises drawings showing the setting up of perspectives, details of stonework and steelwork, and "projets" for a theatre, a fountain in a court of the Louvre, a large shop, a campanile, a bourse, a town-hall, baths, and other buildings, with a few detached subjects like a bank note and a glass exhibition case. These drawings are in the now familiar manner of rendering in wash and colour, and possess a considerable amount of artistic value in addition to technical interest. The draughtsmanship, indeed, is their chief attraction, for, truth to tell, many of them are rather ostentatious and vulgar in the profusion of enrichment. Such drawings, however, as those for the entrance to a city tunnel by M. Crevel, a bathing establishment by M. Guenot, and a fountain by M. Expert, show good design allied to magnificent draughtsmanship, and thus stand as convincing examples of the excellence of the methods which distinguish the Ecole des Beaux-Arts. The exhibition, too, has another interest in being a sort of architectural expression of the *entente*, for it is the intention to bring the London and Paris schools together by a system of exchange exhibitions at intervals of one or two years. Thus, as supplementary to the French drawings, there is shown at the Architectural Association's premises a selection of drawings submitted for the R.I.B.A. prizes and studentships during the past five years, which drawings, it is hoped, "will form the nucleus of an exhibition of English architectural drawings which (by the kindness of the Société des Architectes diplômés) will probably be held in Paris in the near future." A catalogue of the present exhibition (which is open till May 17th) has been prepared under the direction of Mr. H. P. Cart de Lafontaine, and is of interest not only for its reproductions of the principal drawings, but also for the concise particulars it gives of the examinations of the Ecole des Beaux-Arts. The catalogue is issued at 1s.

#### The Water-Divining Report.

A FEW weeks ago, when writing about the water-divining tests which were carried out at Guildford under the eyes of a committee of experts, we confessed ourselves sceptical of the powers claimed by those who put faith in the magic movement of a hazel twig, and the committee's report, now published, gives abundant support to our scepticism. The tests in question were arranged by our contemporary, "The Sanitary Record and Municipal Engineering," the committee of investigation comprising Mr. William Whitaker, F.R.S. (chairman), Professor Henry Adams, Dr. Burnett Ham, Dr. Herbert Lapworth, Dr. Samuel Rideal, Mr. C. Chambers Smith, and Mr. H. D. Searles-Wood. The "diviners" were taken over three separate sites, one being a field crossed by a sewer, the second a lawn over the top of a covered reservoir, and the third a field having under it both a sewer and a spring yielding 50,000 gallons an hour. Some of the diviners "found water," though their indication of it was dubious, but the general results can only be considered as very unsatisfactory, though humorous; as, with one exception, all the "diviners" walked about the lawn without feeling the slightest tremor from the reservoir below. The whole result of the tests is summed up in the general conclusions of the committee, which are—that "whatever sensitiveness to underground water may exist in certain persons, of which some evidence has been given, it is not sufficiently definite and trustworthy

to be of much practical value. Moreover, the lack of agreement with each other shows that it is more a matter of personal mentality than any direct influence of the water. The diviners as a rule confine their attention to small streams of water, and as there are few places where these cannot be found they may well show a large percentage of success."

#### Godalming Town Hall.

THE Godalming Town Council, we are glad to see decided last week that their old town hall should not be pulled down to meet the supposed claims of traffic. The majority in favour of retention, however, was a small one, and we shall not be surprised therefore to find the matter brought up again in the near future. In cases of this kind we fear that most councillors are obsessed by the notion that every traffic facility is an "improvement," which, in our view, explains how it is that the most interesting old building stands very little chance of being preserved if a tramway wants to pass by it. But in the case of Godalming Town Hall it is perhaps as well to say "so far, so good," and to hope that the interest in architecture which we are told is spreading among the public will extend to those whose main object in life is to race along in motor-cars, while non-motoring humanity does what it can to save itself from destruction at every corner.

#### The Rome Scholarship in Sculpture.

ON Wednesday last the Faculty of Sculpture met to consider the works submitted in the preliminary examination for the scholarship in sculpture at the British School at Rome. There were eight competitors, from whom the following four were selected to compete in the final competition: Charles S. Jagger, Gilbert Ledward, Harold Brownsword, and F. J. Wilcoxson. The works were on exhibition at Messrs. Bourlet's Gallery in Nassau Street on Thursday, Friday, and Saturday last. Each competitor had to submit models of a nude and of a bas-relief, drawings from the life, and photographs or drawings of executed work. Of the bas-reliefs, that by Mr. Ledward is particularly good. It shows a number of Greek figures in procession. The modelling is flat and very finely carried out. The bas-reliefs by Mr. Jagger and Mr. Brownsword are also very good, the subject of the former being a revelry of satyrs and nymphs and of the latter the Descent from the Cross. The result of the final competition will be awaited with particular interest, as this is the first of its kind under the recently inaugurated scheme. This scholarship is bound to be the blue riband of sculpture in the same way as the architectural scholarship will become the English *Grand Prix de Rome*. Each scholarship carries with it £200 a year and ordinarily will be tenable for three years.

#### The New Euston.

THE alteration scheme which is now being carried out at Euston will very materially alter the appearance of the station. The directors of the railway desired first of all to bring the terminus out to the Euston Road, but that scheme the County Council would not allow. Under the adopted scheme a portion of the present courtyard will be covered in and a loggia will be constructed giving direct approach to the departure platforms. Immediately behind the loggia will be a large central booking-office, whilst around the present central hall will be arranged all the public rooms and such facilities as the present-day traveller expects. Incidentally, we assume, the architectural distinction the central hall (now hidden in gloom) will be disclosed, and this in itself will be a great improvement.



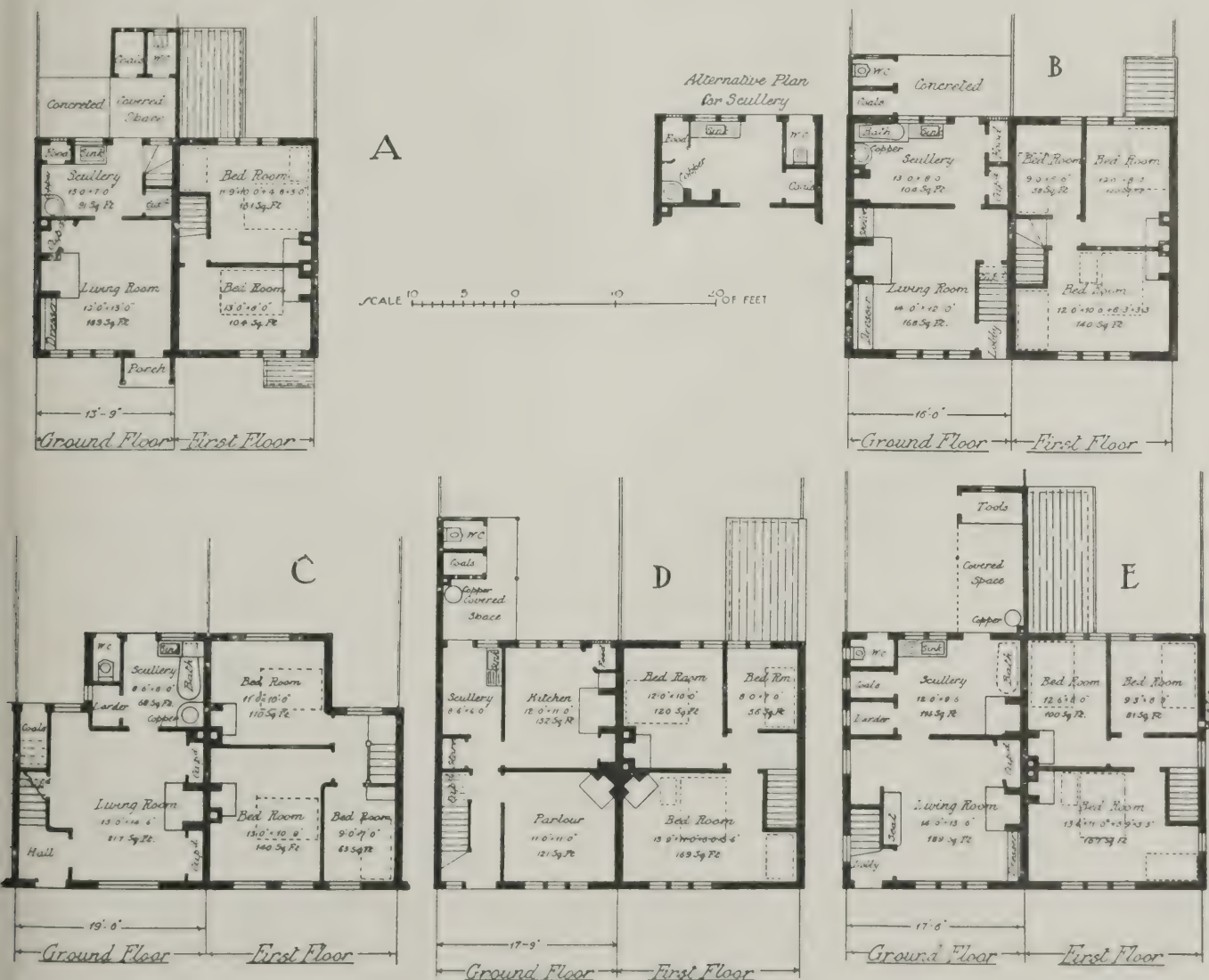
## STANDARD PLANS FOR WORKING-CLASS DWELLINGS.

A MEMORANDUM with respect to the provision and arrangement of houses for the working classes has been issued by the Local Government Board, who explain that, in connection with schemes and proposals submitted to them by local authorities in pursuance of Parts I., II., and III. of the Housing of the Working Classes Act, 1890, as amended by subsequent Acts they have had occasion to consider the principles which should be observed in the construction of houses for the working classes, when these are provided either by a local authority or by other bodies or persons under grants, leases, or contracts to which the local authority are a party. In this Memorandum the Board have summarised their views upon the more important of these principles so far as they are applicable to the erection of separate houses or cottages (whether detached, semi-detached, or in rows or terraces), and of tenement dwellings in small houses. The Memorandum is here reproduced, a few unimportant phrases being omitted.

Under the heading of "Standard of Construction," the Memorandum states that while it is desirable that simplicity of design and economy in construction and general arrangements should be aimed at, it would be well to bear in mind that houses erected by a local authority ought generally to be such as will be a model or standard for houses for the working-classes which

may be erected by private persons. Moreover, if a local authority propose to borrow money to defray the cost of the erection of houses, the Board in fixing the period for the repayment of the loan could not allow the maximum period adopted by them for this purpose, namely sixty years, unless the houses were to be built substantially. As a general rule, therefore, the standard of construction should in the Board's opinion be such that, with only a moderate annual outlay for repairs, the houses should be capable of being maintained in a state in all respects fit for human habitation for a period of at least sixty years. The Board realise, however, that in some cases special circumstances may exist rendering it desirable for the local authority to construct houses of a less permanent character, and to repay the loan in a much shorter period than sixty years.

In making the suggestions contained in the Memorandum, it has been borne in mind that frequently the efforts of the local authority will be directed mainly to the provision of houses below the grade of those suitable for persons of the better-paid working-class community, who can afford to pay a rent which will provide a fair return on the capital employed. The type of dwelling which, it is stated in the Memorandum, may perhaps be regarded as the most suitable in ordinary circumstances is the self-



Type A, three rooms and scullery: cube, 6,597 ft., exclusive of coals and w.c. Type B, four rooms and scullery: cube, 8,448 ft., exclusive of coals and w.c. Type C, four rooms, scullery, larder and w.c.: cube, 9,246 ft. Type D, five rooms and scullery: cube, 9,567 ft., exclusive of coals and w.c. Type E, four rooms, scullery, larder, w.c. and coals: cube, 9,860 ft., exclusive of rear addition.



contained house. This type is generally more popular than the tenement dwelling contained in large blocks, and has advantages in respect of health and comfort which are not shared by the latter. Occasionally there may be a demand for accommodation of a limited character—e.g., for newly-married couples or for aged persons without a family, and in such cases it may be desirable to meet the demand by the provision of two-storey houses consisting of two self-contained dwellings; but, generally, it would seem desirable to avoid, where practicable, the erection of blocks of buildings containing a series of tenements.

With respect to the number and arrangement of buildings on the site, the importance is noted of securing ample open space "in connection with the houses," and the best possible aspect for the living-rooms; and where the houses are built in rows it is desirable that they should be set back from the street line, so as to allow small gardens or forecourts to intervene between the houses and the street; that it is undesirable that long rows of houses without a break should be constructed, as they overcrowd the site, give a monotonous and depressing appearance, and prevent easy intercommunication between streets; that, where houses are erected in rows, back streets for the removal of house refuse, the delivery of coals, laying of drains, etc., may be necessary; that the erection of detached or semi-detached cottages may be of advantage, although they would be somewhat more costly than blocks of four or more; and that houses built with an unduly narrow frontage, the necessary internal space being obtained by making the houses deep from front to back, or with projections at the back, are objectionable because of the consequent insufficient access of light and air—in the case of houses containing three bedrooms on the first floor, it is desirable that the frontage should be in no case less than 16 ft.

As to the general arrangement of interiors, it is noted that the type of dwelling adapted to the ordinary working-class family of, say, five to seven persons should comprise a living-room, scullery, food store, three bedrooms, and the necessary conveniences and out-offices. It is recommended that the living-room, being used by all the family in common, ought to be as large and commodious as possible, and should contain a good cupboard and dresser, and a kitchen range with a boiler for hot-water supply. The scullery may be fitted with a small range or open fire, or with a gas stove, so that cooking may be done here in the summer, when the warmth of the fire is not needed in the living-room. A bath, fitted with hinged top to form a table when not in use, can advantageously be fixed in the scullery, hot water being supplied to the bath and sink from a copper in the scullery, from a tank connected to a small boiler in the kitchen range, or from a copper heated by the kitchen range. Baths, which need not necessarily be of the full size, should be of vitreous enamelled iron, and should not be encased. The provision of a covered space outside the scullery, in which washing, etc., can be done, and in which the copper can, if desired, be placed, will be found a convenient arrangement. The food store should be well lighted and ventilated by a separate window opening into the external air, and, in order that it may be kept cool, should not be placed so as to adjoin any fireplace or chimney flue, and a sunless aspect is desirable. Bedrooms should be as large and airy as practicable. It is desirable that one of the rooms should have a floor area of at least 120 square feet. Those which cannot be provided with a fireplace should have special ventilation. This may be provided by means of fixed louvres over the door, and the door should be at the opposite end of the room from the window. The doors, windows, and fireplaces in the bedrooms should be arranged so as to secure convenient spaces for the bed and furniture and to ensure the freest circulation of air. Separate closet accommodation should be provided for each house, and the entrance to it should be

placed outside the house. A water-closet may be placed close to or built as part of the house, and access to the entrance should be under cover if possible. If an earth-closet is provided it should be placed at some distance from the house. A store for coal and fuel should be provided. It is desirable that there should be a paved or concreted area immediately adjoining the back of the house. The height of the rooms need not exceed 8 ft. 6 in., and 8 ft. may suffice with good ventilation. The staircase should be arranged independently of a living-room. It should be well lighted and ventilated, should be furnished with a handrail and be of an easy gradient, with risers not exceeding 8 in., windows being avoided if possible.

It is not desirable that cellars should be provided. They add substantially to the cost of a house, and, apart from dangers that may arise from damp or ground air, are liable to be made receptacles for rubbish and to become a nuisance. The window area of each room should not be less than one-twelfth of the floor area of the room. The windows should be made to open and should be so placed as to ventilate the upper as well as the lower portions of the room, and at the same time be sufficiently low down to enable children to see out of them. The ordinary casement type of window, with opening lights above a transom, is recommended as a good and inexpensive form.

The materials of which the houses should be constructed will vary according to the locality. Brickwork, covered externally with roughcast or cement, is an economical form of construction, though of not such lasting quality as plain-faced brickwork. Half-brick internal walls which carry the floor-joists should be built in cement. Walls of habitable rooms should be finished internally in plaster; sculleries, larders, outbuildings, etc., being pointed and lime-whitened.

Floors of living-rooms and bedrooms should be constructed of deal boarding, those of sculleries and outbuildings being of solid concrete finished in cement panelled doors of inferior quality.

Annexed to the Memorandum are plans designed to meet different requirements. Type A shows two bedrooms. Types B and C are for a family of, say, four adults and three children. Type D contains a parlour, which "should not be provided unless a sufficient rent is obtainable to justify it." Its introduction should not lead to a reduction of the size of the kitchen or living-room. Type E is for a semi-detached house suitable for a family of seven. The cubic capacity of the five types varies from 6,579 cub. ft. to 9,860 cub. ft. In arriving at these figures a height of 8 ft. has been taken for the rooms. The Board judiciously refrain from showing elevations, which might have the result of stereotyping designs. They think that the general designs and elevations may best be left to be decided by local custom or wishes. "In this way it is hoped that there may be full scope for variety and pleasing effect and that the dullness of uniformity may be avoided."

## "THE ARCHITECTURAL REVIEW."

THE high standard achieved by the "Architectural Review" in its new form is well maintained by the May issue, just published. Of special interest is a finely illustrated article on the Hôtel Carnavalet by Mr. W. H. Ward. The Reform Club is dealt with in the first of a new series, the accompanying plates being a revelation to those who are familiar only with the outsides of London club-houses. Other fine plates show some architectural etchings by Mr. William Walker; current architecture being represented by the new north façade of the British Museum, craftwork by a panel by Mr. Broadbent, garden design by details from the gardens at Holdenby and Hatfield, and domestic architecture by Nailsea Court—an old house near Bristol which has been restored and extended under the direction of Mr. Arthur Stratton.



## HERE AND THERE.

AT this season of the year, when a fresh colour has come upon the sward, it is more than ever convincing that there is no setting for a building equal to one of green—more particularly one of unbroken green. Let formal designers have their way, let them unburden themselves on axial lines and divide up the surroundings of a building into architectural shapes, and I will not question the prettiness of the effect on paper. But when we are set before the actuality, with its stately approach, its terraces and steps, the edge of the charm is gone, and the whole conception is not worth a plain expanse of lawn. Who, for instance, gazing across that green area on the river side of King's College, Cambridge, could wish it disturbed by architectural trimmings? Or who could desire, by formal planning, to better the lawns that enliven the Temple? One modern example which I recall—the great central place around which are grouped the finest series of civic buildings in the kingdom (in Cathays Park, Cardiff)—furnishes abundant evidence that a formal lay-out which embraces a symmetrical crop of shrubs and plants is totally lacking in the quality of reposefulness which a lawn possesses. So I would urge the architect to suppress his professional instincts, and, where he can, to take unbroken expanses of green as the ideal setting for his building, keeping his balustrades, his statues, and other conceits to the edges and corners of the space, where, while serving their purpose, they do not disturb the main effect.

\* \* \* \*

From the coroner's remarks at the recent inquest on the unfortunate youth who lost his life by a crane accident in Holborn it is evident that the existing system for the inspection of building operations is, in at least one vital matter, incomplete. Cranes are not subject to official inspection, and it is impossible to disagree with the coroner's comment that the general question is a very grave one as to why the structures are allowed to be erected almost haphazard by builders in the streets of London. "It is to me," he said, "a perfectly extraordinary thing that there is no supervision at all over structures like this." This is one more argument for the contention that the whole system of inspection is in need of thorough reorganisation, in order that it may become at once more effectual and yet less harassing to the builder. From personal observation I should say that hoisting operations on buildings are often conducted with a lamentable disregard for safety. For example, on a building whose progress I am watching with interest, bricks are being hoisted in a barrow from the ground-level to a platform about 40 ft. above. Here a man standing between two rickety shear-legs controls the power and directs the barrow, which wobbles about like a ship in a storm, occasionally bumping against the planks and casting down from its loosely piled load a brick or two, which would certainly kill the man below if he failed to stand clear. That, realising the peril, he usually keeps well away, is no guarantee that he will invariably escape; and as for the man above, one false step or the slightest lurch forward, or a trifling mistake in handling the ropes, or an awkward landing of the barrow, would end his gymnastic career; for the shallow plank at his feet seems better calculated to help him to stumble overboard than to keep him back. Constantly leaning forward to keep watch on the ascending or descending barrow, he depends for his life on the strength of the rope he grasps, on the stability of the rickety poles to which it is attached, and on his own tenacity of grip. These men, the upper and the nether, are simply gambling with fate. It is true that they are following well-established precedent; but, nevertheless, they are incurring unnecessary risks. From these and from other

examples the inference is only too obvious that building is a much more hazardous trade than it need be if more reasonable precautions were rendered compulsory, and a proper system of inspection were instituted and maintained.

\* \* \* \*

To those with sharp wits and a ready pen Lord Morley's speech at the recent Academy banquet has a direct application. Himself a great writer, as well as a prominent statesman, he was entertaining his hearers with a little homily on the vices of carping criticism, as related to pictures. Lord Morley's view, judging by his own essays, leans towards a keen though kindly criticism, the extreme development of which is perhaps to be found in Mr. T. P. O'Connor, who, if he cannot say anything pleasant about a book, says nothing. In his Academy banquet speech Lord Morley said: "We read to-day, and we shall read on Monday, what the critics think of the work of the members of the Academy and others. I have been a critic, and I still am, in a way. You will hear it said—I already see it—that the painting is mediocre. But, to my mind, after a good long experience, there is no surer mark of mediocrity than to be ready with carping observations and grudging and stinting in cordial praise. There was one Frenchman of eminence who said of another Frenchman of great eminence: 'Three days in the week he is absurd, three days in the week he is mediocre; one day in the week he is sublime.' It occurs to me that, if I were a critic of the paintings here and elsewhere, I would give six days in the week to the excellencies of the artists, and the odd day—and a short one—to pointing out this or that short-coming. That would probably result in a fair balance."

Lord Morley's creed is an excellent one, but very difficult to practise. It is always so much easier to write in dispraise of a thing than in praise of it; we seem predisposed to the former, and, what is more, readers are predisposed to something slashingly hostile in the way of criticism. But, in truth, it gets rather wearisome when there is nothing but depreciation to utter—sometimes with a sneer; and so for the good of our architectural souls we shall all do well to emulate some of those high virtues of criticism which Lord Morley sets before us in his own books.

\* \* \* \*

It is worth while to say a word in favour of the wooden window shutter. Soon we shall have the heat upon us, and then, unless our windows be shielded by outside blinds (whose bars and fasteners are hidden in rusty obscurity), we shall know how ineffectual is the holland behind the glass. Yet all the time we have ready to hand the wooden shutter, bristling with merits. From the point of view of external architectural effect it is excellent, though here I am thinking more especially of the louvred shutter, not that solid cottage type whose heart-piercing would seem to have given Mr. Voysey his cue. And when we come to study the merits of the shutter from the inside, they are so pronounced that it is a wonder we so rarely see this fitment in suburbia. But it must be a well-made shutter, and one preferably that runs quietly to and fro on an iron rail in front of French windows—not a contrivance which the night wind makes a creaking trouble of, and which, when once back in its place against the wall, necessitates a struggle with the weather in order that it may be brought over to cover the window. For bedrooms in particular, then, I chant the praise of the louvred shutter. It keeps out the light of the early morning and the heat of the day while admitting the air, and so does its part in making rooms restful and healthy.

UBIQUE.

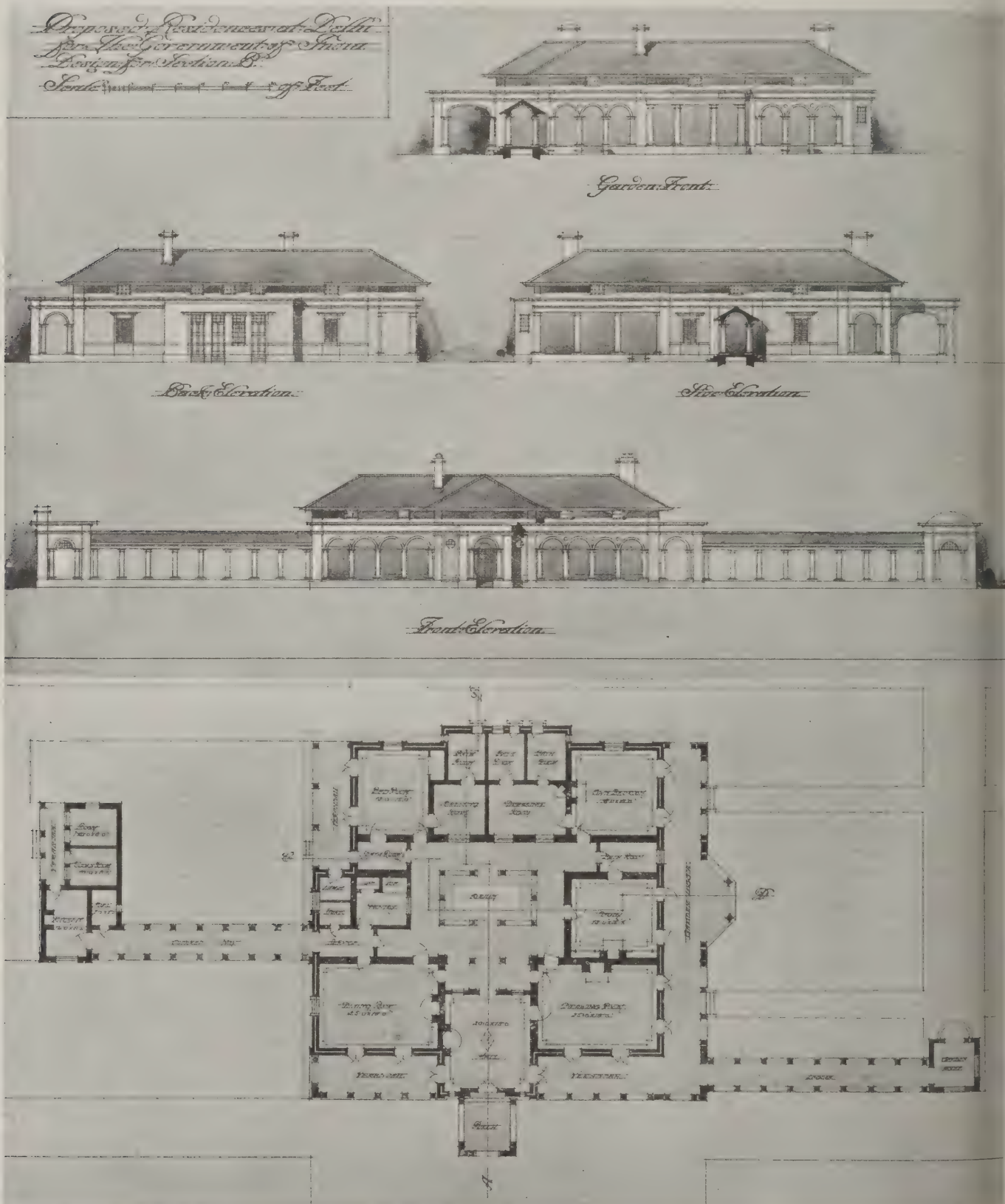
## RESIDENCES FOR THE NEW DELHI.

AT the end of July last year the Government of India invited architects and others residing in India to submit competitive designs for residences to be erected in the new Delhi. The designs sent in were examined by a committee, which met at Delhi on February 3rd and 4th last, and a summary of their report was sent to competitors on the 27th of the same month.

The committee comprised Sir Robert Carlyle, Mr.

W. M. Hailey (Chief Commissioner of Delhi), Sir Rajendra Nath Mukerji (of Messrs. Martin and Co., Calcutta), and Mr. H. T. Keeling, A.M.I.C.E. (Chief Engineer of New Delhi), with Mr. John Begg, F.R.I.B.A. (Consulting Architect to the Government of India), as assessor.

They were unable to recommend any design submitted for Sections A and B as suitable for the award of premium. In Section B2 they awarded a premium



DESIGN FOR RESIDENCE, DELHI—SECTION B: BY CHARLES F. STEVENS AND CO.

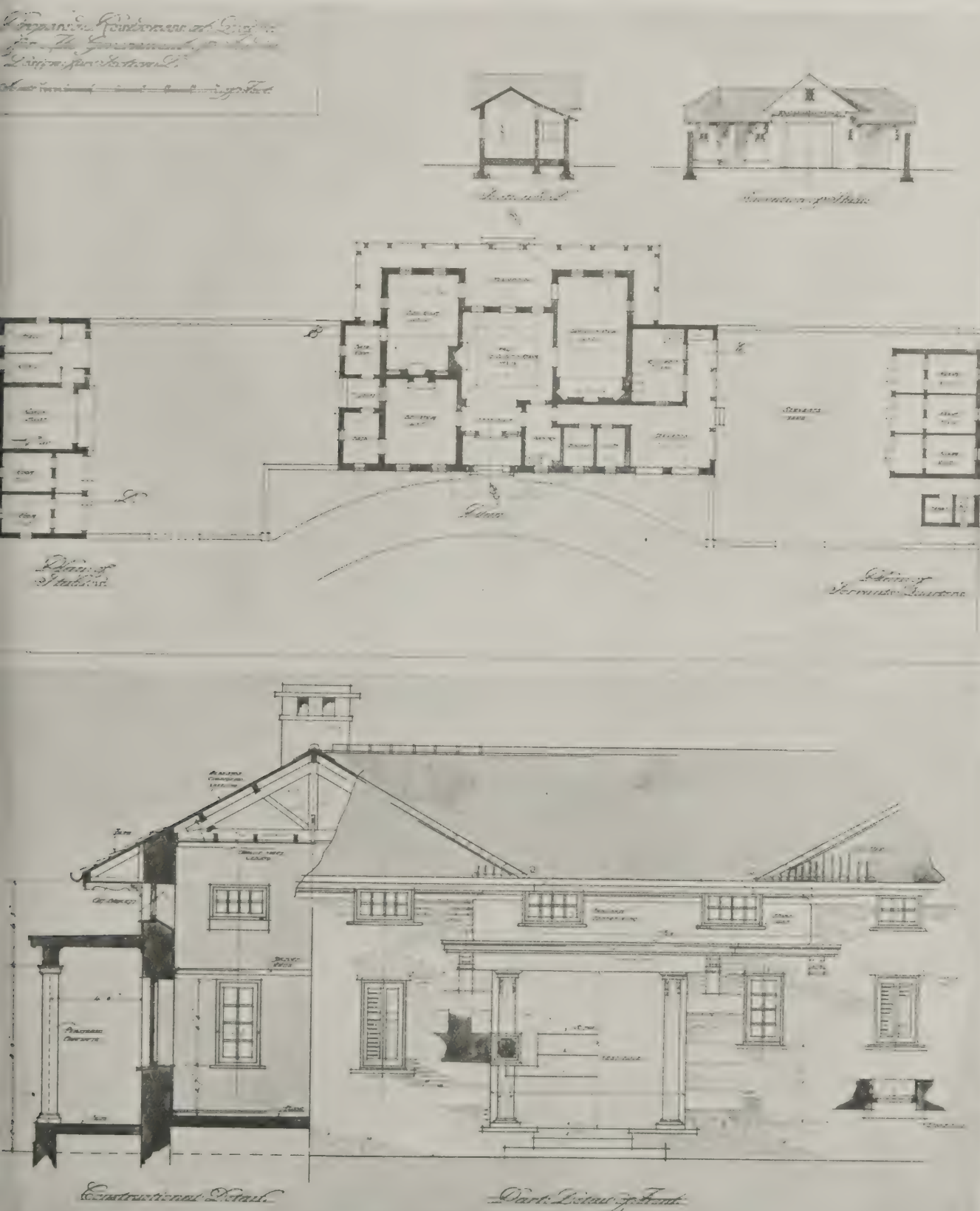


of the third class (Rs.375—about £37) to a design submitted by Babu Ram Rup Sharma, of the office of the Consulting Architect to the Government of the United Provinces, who was also awarded the second premium (Rs.500—about £50) for a design in Section C. In Section D they awarded a premium of the second class (Rs.350) to a design submitted by Messrs. Charles F. Stevens and Co., of Bombay (reproduced below). They were unable to award a premium in Section E.

In the summary of their report it is stated that the committee found the designs as a whole disappointing,

and were of opinion that none of those submitted were suitable for adoption.

Referring to this, a correspondent in Bombay writes to say that the result of the competition has caused a good deal of dissatisfaction among architects resident in India, and he draws our attention to a critique in the "Times of India," where the writer says that, "although the opinion generally expressed was that the exhibition as a whole was disappointing, still there were a large number of drawings evidently designed by men who not only displayed a very



PREMIATED DESIGN FOR RESIDENCE, DELHI—SECTION D. CHARLES F. STEVENS AND CO., ARCHITECTS.

thorough knowledge and grasp of Indian conditions, but who also were able to imbue their designs with no small amount of really sound æsthetic feeling." With regard to the committee's remark that none of the designs submitted were considered suitable for adoption, another writer in "The Times of India" says: "On the face of it, this assertion strikes one as being strange, to say the least. As I gather that the competition was very largely entered for, and that it was open only to architects residing in India, this means that out of all those who must, one would think, be most closely in touch with Indian requirements, not one is able to solve the problem satisfactorily. If this is the case in the simplest of domestic work, one is tempted to ask what will happen with the larger buildings to come."

We are able to illustrate in this issue the premiated design for Section D, by Messrs. Charles F. Stevens and Co., and another design for Section B, by the same firm (which comprises Mr. Charles F. Stevens, F.R.I.B.A., and Mr. Thomas S. Gregson, A.R.I.B.A.).

In the premiated design for residences to be erected in Section D the principal rooms are grouped round a combined central hall and dining-room (as suggested in the conditions of competition), the latter being entered from the small vestibule, separated again from the entrance lobby by a glazed screen. The two bedrooms are each approximately of the required floor area, and have their respective bathrooms entered from the rooms themselves and also from the servants' lobby, having direct access to the yard.

For so small a bungalow, and bearing in mind the fact (as stated in the conditions of competition) that the house is required mainly for occupation during the cold weather, it has been felt unnecessary to provide for a verandah all round the building, or to include one of any great size. Fireplaces are provided in all the principal rooms, which are proposed to be treated in plaster with ceilings of Uralite sheeting. All windows on the exterior walls are provided with shutters. The bungalow is proposed to be built of bricks, and roofed with double tiles on corrugated iron sheeting, with cow-dung and earth filling.

## OUR PLATES.

### *New Storey to the Burlington Arcade.*

**B**URLINGTON ARCADE, one of the most interesting features of Piccadilly, was built in 1818-19 from the designs of Samuel Ware, and up to the latter part of 1911 it remained in practically its original condition. About that time a new storey, cleverly conceived so as to harmonise with the existing work, was added at the Piccadilly end from the designs of Professor Beresford Pite, F.R.I.B.A. We publish on page 517 of this issue a photograph of the complete front. The addition, which comprises a suite of offices, is reached by a staircase just within the entrance to the Arcade. The coat of arms, that of Lord Chesham, is of terra-cotta, and was executed by Messrs. James Stiff and Sons, of Lambeth.

### *An Improvement Scheme for the South Side of London.*

The scheme for the improvement of the south side of the Thames, by Mr. C. E. Mallows, which is shown on the Centre Plate in this issue, is a revision and a development of one made more than ten years ago. So far, however, as the proposed southern embankment is concerned, the main features of the original scheme are retained, with the following additional proposals: (1) The removal of the present termini of the South-Eastern and Chatham Railway at Cannon Street and Charing Cross to the south side of the river, where they would be united in one large group of stations, including Waterloo. (2) The

building of another bridge similar to Waterloo Bridge on its east side, which would link up the eastern arm of Aldwych directly with the proposed new Waterloo Station. In this way the traffic from that station would be delivered in a direct manner to the west, north, and east of London. (3) The formation of four large public gardens—of which South London stands so much in need—forming the quadrants of a Circus, the centre of which would lie in the centre of the present irregular space called the Elephant and Castle. From this point four main avenues would radiate, the principal one running due north in a straight line to St. Paul's and having the dome of the Cathedral as its focal point, and another in a westerly direction, also in a straight line, through the existing Horseferry Road in Westminster to Victoria Station. (4) The formation of another open public space adjoining Lambeth Palace and Park, in outline roughly balancing the Palace Grounds on the south-west side of the proposed new avenue to Victoria. The southern embankment is proposed to be of two levels, one balancing the existing northern embankment in width and general treatment, and the one at a higher level, approximating to the level of the terrace in front of Somerset House. The general idea of the architectural treatment of the southern embankment would correspond to Somerset House in its relation to the embankment and river, except that the higher embankment would be very wide and provision would be made for public gardens between the new building line and the lower embankment.

Special attention is directed to the fact that the scheme is not confined to embanking the south side and erecting buildings along its length, but more particularly concerns the whole area on the south side of the river, which is laid out according to a comprehensive scheme.

### *Design for a Suburban House.*

The design by Mr. F. Jenkins, which is shown on pages 519-521 of this issue, is an attempt to apply the principles of formal architecture, as advocated by the Liverpool School, to the ordinary suburban house. The author feels that we are on the verge of a reaction: from the picturesque cottage type of house to the more formal type prevalent at the beginning of last century. Clients who have had their tastes sharpened and refined by collecting old china and furniture cannot much longer be content with rooms of no particular form and bearing no architectural relation to one another. The aim of this design, therefore, is to show that it is possible on quite a small scale to have an orderly progression of well-proportioned rooms, and that the whole may be brought into a simple architectural unit without undue loss of character. The estimated cost of the house, with outbuildings, is £1,540.

### *Sansovino's Library, Venice.*

The well-known Library at one corner of the Piazzetta and the Piazzetta of St. Mark, Venice—shown by the drawing on page 506—was begun in 1536 from Sansovino's design.

### *Monument to the French Republic.*

There are in Paris several monuments to the Republic, the most noteworthy being that by Dalou. The monument in the Place de la République, shown on the opposite page, is less well known, though of much interest as a fine group. It was erected in 1884 the sculpture being by the brothers Morice.

*Erratum:* A curious error occurred in the particulars of the plates on page 489 of our issue for last week: six "Linotype" lines having got misplaced at the bottom of the left-hand column instead of being at the bottom of the right-hand column, under "New Business Premises, Hanover Square, London."

















MONUMENT TO THE GLORY OF THE FRENCH REPUBLIC, PLACE DE LA RÉPUBLIQUE, PARIS.

(See page 514.)

UNIVERSITY OF ILLINOIS



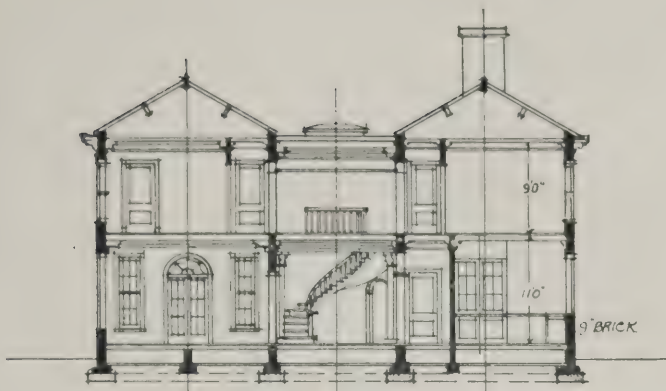


ADDITIONS TO THE BURLINGTON ARCADE, PICCADILLY, LONDON  
PROFESSOR BERESFORD PITE, F.R.I.B.A., ARCHITECT.

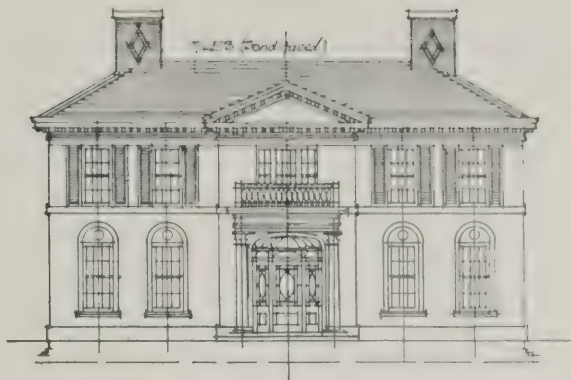
(See page 514.)



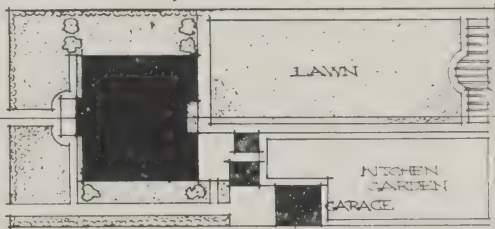




SECTION AB.

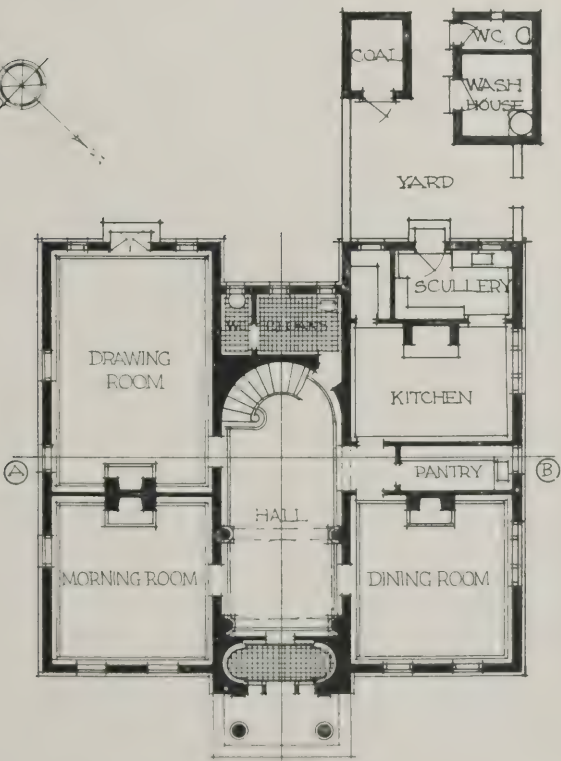


SIDE ELEVATIONS

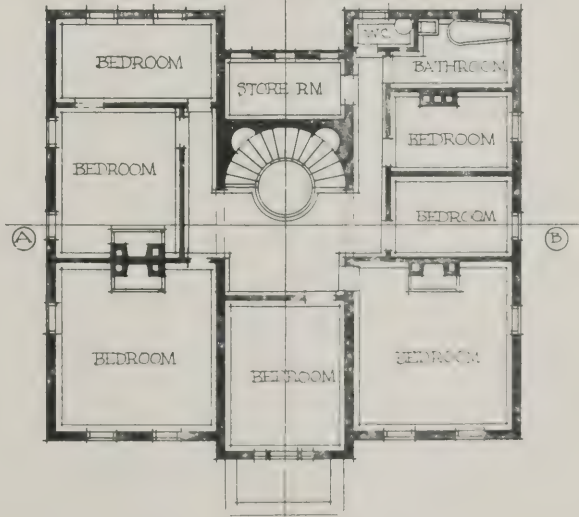


SCALE  
20 FT = 1 IN.

BLOCK PLAN



GROUND FLOOR



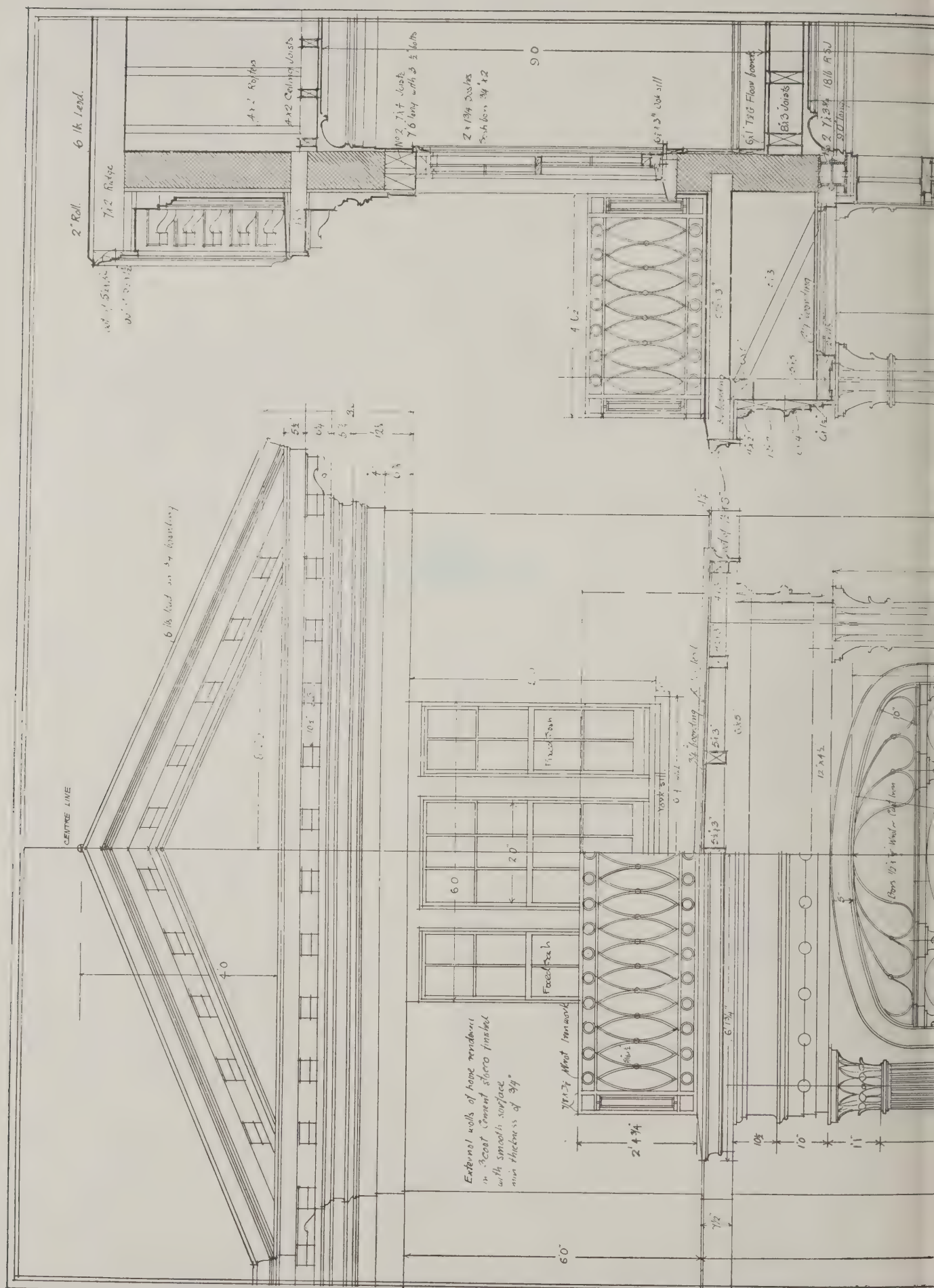
FIRST FLOOR

EIGHTH INCH SCALE

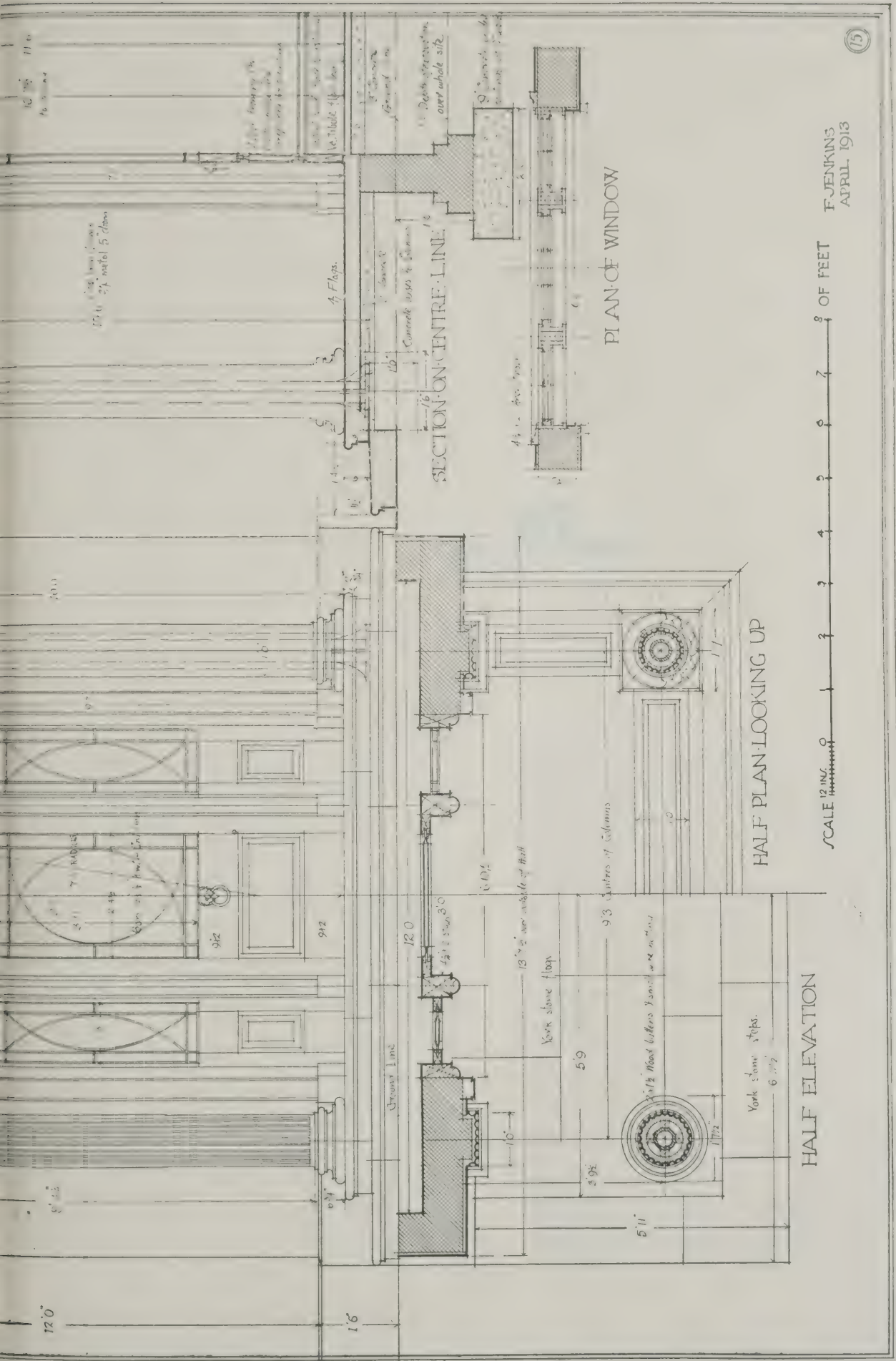
MODERN DOMESTIC ARCHITECTURE.

HOUSES OF INTERMEDIATE SIZE. IX.—DESIGN FOR A SUBURBAN HOUSE. BY F. JENKINS.

(See page 514.)







DESIGN FOR A SUBURBAN HOUSE: DETAIL OF CENTRAL PORTION OF FRONT ELEVATION. BY F. JENKINS

(See page 514.)

## CORRESPONDENCE.

*The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents.*

*Correspondents are asked to be brief, and to write on one side only of the paper.*

*The Garden Suburb Movement.*

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—The "Englishman" who suggests that it is wrong for people to get out of crowded towns and live on the outskirts ought certainly to recognise the difference between the garden suburb and the garden city, which he seems to confuse somewhat in his letter. The two things are quite distinct, and whilst there is only one garden city—namely, that at Letchworth—there are scores of garden suburbs, where the residents, we think, would resent his reference to their seeking "places of refuge from the towns." His suggestion that the movement may be stemmed is almost as futile as the efforts of King Canute to send back the waves. From every point of view the evidence is against him.

The ratepayers of districts in which the co-partnership garden suburbs have been established are welcoming their development, for, in the provision of open spaces, the institution of libraries, the establishing of playing centres for children, and in providing clubs and institutes, the societies are really doing work that ordinarily is a burden to the whole body of the ratepayers.

The first suburb that was established—at Ealing—is a good instance of this. I would advise "Englishman" to write to Mr. W. Fletcher, at 7, Winscombe Crescent, Brentham Garden Suburb, Ealing, W., for a copy of a new history that shows what is being done in this way. This is a fairly substantial book, and doubtless "Englishman" would be pleased to send two penny stamps to Mr. Fletcher to cover the cost of postage.

From the health point of view, reference may well be made to the Hampstead Garden Suburb, where the death rate is about one-fourth of what it is at Brighton. Of course, where the houses are built to the proportion of only ten to the acre, this must be a means to healthy living, which is not possible where crowded conditions prevail.

I am afraid that the "cheap" cottage exhibition that was held many years ago at Letchworth did something to give the impression that the word "cheap" was associated with the garden city, but a visit to the houses which the Garden City Tenants at Letchworth have erected, those of the Humberstone Garden Suburb at Leicester, the Penkhull Garden Village at Stoke-on-Trent, or, to come nearer London, to those which have been erected by the co-partnership societies at Hampstead, should convince the sceptical person of the good work that is being done.

EDITOR, "CO-PARTNERSHIP."

*The Strength of Camber Arches.*

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—The issue raised in my original letter—March 19th, page 297—seems to have become slightly obscured; and while I would not care to go as far as "R. W. C." in saying that "the angle of skewback . . . is quite immaterial," we are apparently agreed that it is not the most important factor of its strength.

The possible causes of failure in an arch may be limited to three, viz.: (7) Spread of abutments; (2) destruction of its components by crushing; and (3) buckling. The last condition occurs in practice, as the arch is usually equally loaded.

Provided that a camber arch is built of material sufficiently strong to preclude the possibility of failure by its crushing, then the partial failure referred to by "R. W. C." as necessary to develop the function of the

"invisible arch" can only occur by reason of the spread of the abutments; and what is to warrant the assumption that the failure will cease at this point and not proceed to the total destruction of the arch?

I am aware that a flat or camber arch exerts more thrust than one having a greater rise; and this holds good throughout the scale until the pointed arch is reached, which exerts little or no thrust upon its abutments, but which has the greatest tendency to buckle. But it should be the most elementary precaution to provide abutments of sufficient strength.

Professor Adams's statement that "Nature chooses the outline that gives the maximum resistance" has a satisfying sound; but can it be said that any choice is left her when we arbitrarily fix the shape of the structure? She is, however, proverbially economical, and will utilise every possible portion of it to the best advantage.

I think that the theory propounded by Professor Adams might be more correctly expressed as follows:—Given a certain superficial area to expend in an arch construction for a fixed span, it will be used to the best advantage in that form which has the greatest amount of rise.

This is, of course, subject to certain limitations, the determining factors of which will be the crushing strength of the material and the tendency of the arch to buckle; and an approximate ratio might be fixed of width to span such as we already have for the width of brick piers—1-12th height—this ratio to be arrived at by experiment.

It will be observed that this differs considerably from the contention that the strength of the structure is limited to any portion of its area, no matter how the definition of the latter may be arrived at.

L. E. WALKER.

*Dublin Municipal Buildings Competition.*

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—The influence the review in your issue of April 30th is sure to have, from its professional and artistic acumen, induces me to venture to offer some remarks on it which, I trust, will not be considered to detract at all from the weight due to its general tenor, owing to its comprehensive nature, which much exceeds any criticisms on the subject that I have seen in print. All the rest of them have, in my opinion, fallen much short of what was desirable; and even your own article, I would say, falls somewhat short of the necessities of the case. It indicates surprise that Messrs. McDonnell and Reid should have used the Ionic order, supporting the view that the Corinthian was what was called for by the statement that the height of the columniation in the existing City Hall and that of the premiated design are approximately the same. But certainly the bases of the columns of the building just named are at a lower level than those of the proposed building, and, as far as somewhat careful personal observations and notes made upon the ground permit me to judge, the tops of the old columns are higher than those in the said design for the new ones. And reference to a volume here (National Library of Ireland) containing a bird's-eye view, by the late Sir Thomas Drew, R.H.A., etc., makes the heights I have determined for the tops of these columns respectively just coincident with an older estimate; whilst, if the matter is decided by the perspective view amongst the competition drawings put in by Sir Thomas M. Deane, R.H.A., etc., the City Hall columns would oversail the intended ones considerably more than I have estimated. Thus, unless Messrs. McDonnell and Reid were prepared for an attenuation of their columns and pilasters, which they would, doubtless, view as objectionable, they were debarred from using the Corinthian order. Besides, the enrichments embraced in this style, at least as used in the eighteenth



and early nineteenth century architecture of Dublin, appear to me to call for the choice they have made, especially considering the building in question (the City Hall), upon which the decoration approaches floridness. The scheme of the interior rotunda is of a richness even exceeding the exterior, and quite impossible to be now emulated, having regard to the financial position of the City of Dublin.

You object to Messrs. McDonnell and Reid's Lord Edward Street façade because towards its centre it lacks any dominating features. But, surely, their departure from more accepted lines is due to and is justified by the retention of the existing Municipal Office buildings as a portion of the proposed edifice; and if their whole Lord Edward Street front is taken, in my opinion, it must be allowed to be more attractive than either of the other two premiated designs. Where, I venture to consider, they have failed is in not doing what is called for in regard to the embodied building; this view I regard as partly developed and partly latent in your own criticism, though of immense practical importance.

Your reference to Mr. Sheridan's façade was also greatly needed. I coincide a good deal with your favourable estimate of, to use your description, its scholarly character. But what I feel is that he has followed too closely the lines of the actual Dublin Adam building instead of allowing himself the scope which is afforded by other works of that creator.

Dublin. CORK HILL.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—Careful reflection upon your admirable article dealing with the above convinces me that the logical outcome of your remarks is the removal of the existing office building, a result which I should certainly consider preferable to its retention on, at all events, the lines of any of the three premiated designs.

While writing on this matter, allow me to state that the present vogue of the Ionic Order, with a tendency to produce a capital based on but more ornate and

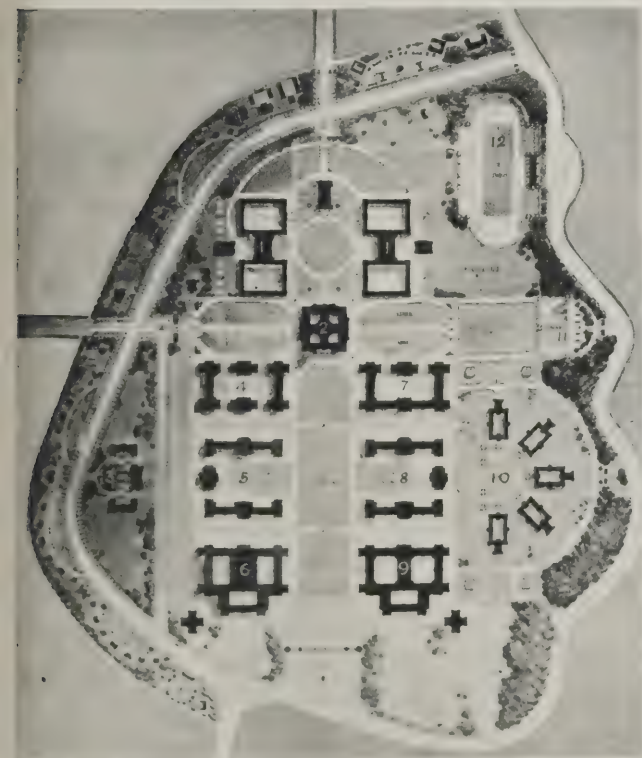
longer than it, whilst shorter than the Corinthian, would alone be sufficient to explain Messrs. McDonnell and Reid's choice. Personally, I hold that the change ought to be to the less ornate (Roman) Doric instead of to the richer Corinthian; for it never can be feasible to read together the City Hall and the new portion of the intended block.

Rathmines.

WILLIAM LALOR.

## NEW UNIVERSITY BUILDINGS, VANCOUVER.

THE award of the assessors in the competition for new University buildings for British Columbia, to be erected at Point Grey, Vancouver, has been announced as follows:—1st, Messrs. Sharpe and Thompson; 2nd, Mr. Douglas Scott Bow; 3rd, Mr. Philip J. Turner; 4th, Messrs. Symons and Rae. The committee of assessors consisted of the Hon. Dr. H. E. Young, Minister of Education; Mr. F. L. Carter-Cotton, Chancellor of the University; Mr. W. D. Caröe, of London; Mr. A. Arthur Cox, of Vancouver; Mr. Samuel Maclure, of Victoria; and distinguished members of the Canadian architectural profession, assisted by the Hon. Thomas Taylor (Minister of Public Works). We reproduce below the block plans of the schemes awarded first and second places. The conditions of the competition restricted architects to the late Tudor, the Elizabethan, or the Scottish Baronial style; and the successful competitors have adopted a version of Tudor Gothic. In awarding the prize to Messrs. Sharpe and Thompson, the assessors commend the direct and straightforward scheme which has been devised. The buildings fit themselves naturally, in a simple and well-balanced way, upon the site, and culminate in the block of the administrative group, which forms a dominating feature from all points of the compass. The complete scheme is estimated to cost \$10,000,000 (about £2,000,000).



Design placed First. Sharpe and Thompson, Architects.

1, Dormitories with Chapel between; 2, Administration; 3, Women's College; 4, Agricultural, Finance, Arts, and Pedagogy; 5, Science Quadrangle—Physics, Museum, and Chemistry; 6, Engineering School; 7, Dentistry, Medicine, and Pharmacy; 8, Arts Quadrangle; 9, School of Mines; 10, Theological Group; 11, Theatre; 12, Stadium.



Design placed Second. Douglas Scott Bow, Architect.

1, Administration, Chapel and Assembly Halls; 2, Dormitories; 3, Naval Architecture; 4, Pedagogy and Philosophy; 5, Theology; 6, Fine Arts and Law; 7, Pharmacy and Dentistry; 8, Physiology; 9, Anatomy; 10, Surgery and Hospital; 11, Finance; 12, Mining; 13, Engineering; 14, Gymnasium; 15, Chemistry; 16, Medicine; 17, Museum; 18, Arts; 19, Library; 20 and 21, Women's College.

BLOCK PLANS FOR NEW UNIVERSITY BUILDINGS, VANCOUVER, BRITISH COLUMBIA.



## MODEL ANSWERS TO R.I.B.A. EXAMINATION QUESTIONS.

## INTERMEDIATE EXAMINATION.

BY G. E. FRANCIS.

## HISTORICAL ARCHITECTURE.—(c) FRENCH AND ENGLISH GOTHIC.

Time allowed, four hours. Only five questions were to be attempted.

1. Compare by means of sketches the development and structural principles of vaulting in England and in France.

Answer.—In England, great development took place—from the Norman vault, with semicircular ribs and stilted arches, to the wonderful fan vaulting which is peculiar to this country. Ridge ribs, intermediate ribs, and lierne ribs were largely employed.

Great height was not a prevailing feature. The joints of the severies are at right-angles to a line bisecting the angle between any two ribs.

Vaulting in France was never developed to any great extent, great height being characteristic. The French vaults were usually domical, while ridged ribs, tiercerons, and lierne ribs were rarely employed.

Pendant vaults were used in the "flamboyant period." The joints of the severies were at right angles and parallel to the wall ribs.

2. Draw to  $\frac{1}{4}$ -in. scale a stone buttress to the vaulted aisle of (1) an English and (2) a French cathedral.

Answer.—The illustration shows: (1) A section taken at the end of the south transept of Salisbury Cathedral and (2) a section through the nave of Amiens Cathedral.

3. Describe and illustrate with plans and sketches the chief points of divergence between a typical cathedral in England and in France.

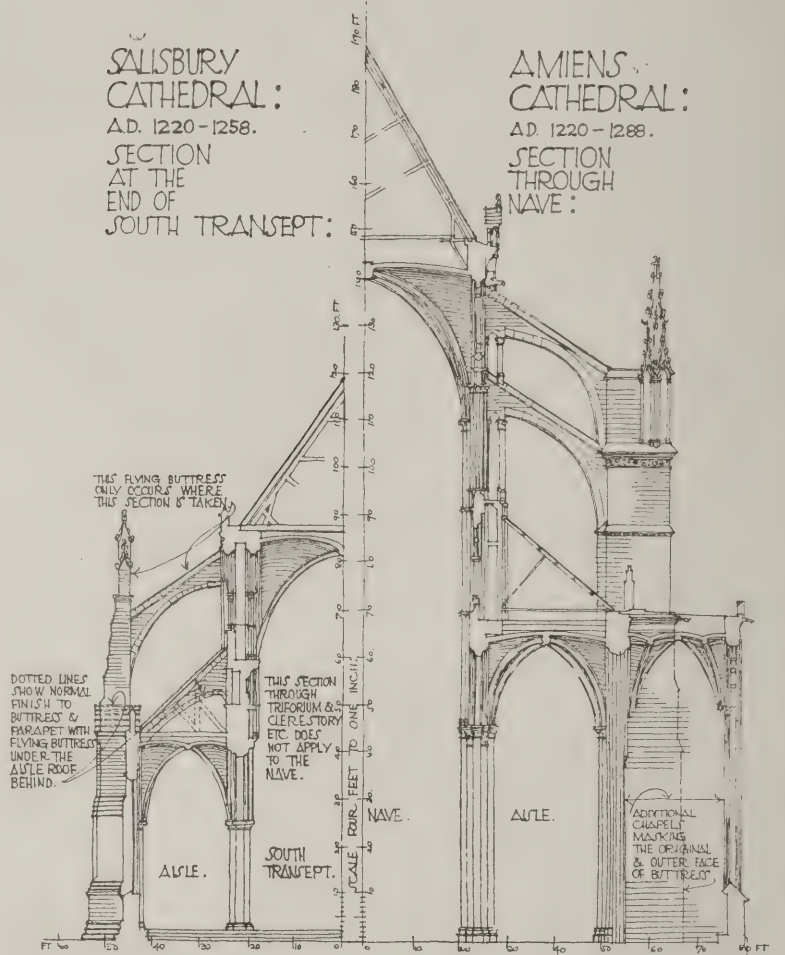
Answer.—Founded in the same year, A.D. 1219, the Cathedrals of Salisbury and Amiens furnish probably the best means of comparing the international characteristics of two great Gothic-building countries.

In comparing the plans, we find that

## SALISBURY CATHEDRAL:

A.D. 1220-1258.

SECTION AT THE END OF SOUTH TRANSEPT:



Question 2.

Amiens is designed on a much larger scale—i.e., the width of the severy is greater. (The sketch plans are drawn to the same modular or severy scale, thus reducing the length of Amiens.) It has therefore fewer parts than Salisbury, and, being measured by a larger scale, appears smaller.

Examining the exterior of Salisbury, we find seven distinct façades; in Amiens, only three; while a similar distinction exists between the number of aisles (including the nave) in the churches.

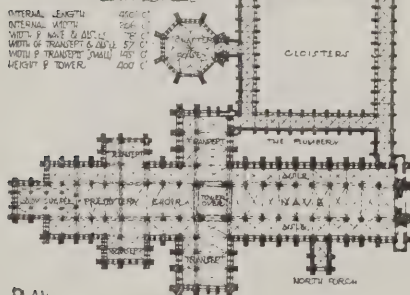
In the clerestory Salisbury has six main fronts and sixty flanking compartments; Amiens has only three fronts and thirty-nine flanking compartments.

For these reasons it is hard to believe that Salisbury covers no more ground than Amiens, and that it has only one-half its internal capacity.

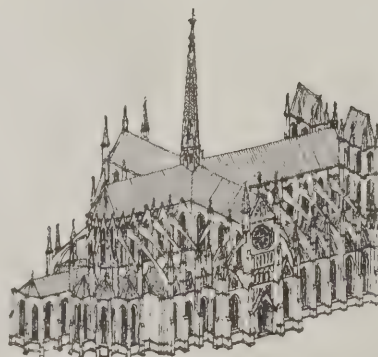
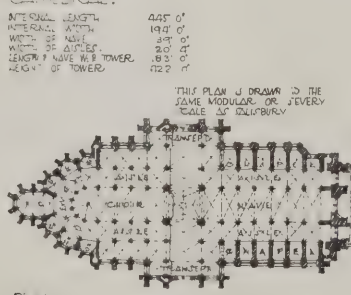
Internally the latter is far more imposing owing to greatness of scale, an effect lost in the building on a smaller modular basis.

The French sacrificed everything to the interior, the exterior having the sole merit of hugeness, which is contributed to by its extraordinary height requiring a vast scaffolding of flying buttresses, the very slight projection of the transepts beyond this maze of props, and the western towers (although some of the highest in existence) scarcely rising above the roof.

The central tower, although a little higher than Salisbury, is too slender to break the outline of this vast building and

BIRD'S-EYE VIEW  
SALISBURY CATHEDRAL

PLAN

BIRD'S-EYE VIEW  
AMIENS CATHEDRAL

PLAN

Question 3.



LEGAL.

In the King's Bench Division, on May 5th, Mr. Justice Scrutton delivered judgment in the case of Hurlstone v. The London Electric Railway Company and another.—Miss Florence Hurlstone, the plaintiff, sued the railway company and Messrs. F. W. Dunkley, Ltd., builders, for compensation for injuries she sustained by some timber falling on her as she was passing the railway station at Cranbourn Street, where building operations were in progress.—In the course of his judgment Mr. Justice Scrutton stated that the railway company had bound Dunkleys to erect over a tube railway station a super-structure of which they (Dunkleys) were to have a ninety-nine years' lease at £500 a year. It was in course of this work that the accident occurred, but there was not evidence to show how, or why, the timber fell. Counsel for plaintiff, his lordship said, desired to hit the railway company rather than the builders, who did not appear at the trial. At the trial, on April 22nd, the jury had decided that the railway company were responsible for negligence in not providing sufficient protection to the public. Two questions appeared to arise. First, did the railway company owe a duty to people in the street to protect them from the building operations, and was there evidence of any breach of that duty? Secondly, if there was no

direct negligence of the railway company, but negligence of Dunkleys, were the railway company liable for that negligence, or was it what is called "casual or collateral negligence" of an independent contractor? On the first question his lordship thought that the railway company who made a contract to have built for their profit and the contractors' a building on their premises adjoining the street, which required for its erection operations dangerous to the public passing by, were under a duty to safeguard the public from those operations, which they did not fulfil by delegating it to an independent contractor. In his view they "caused the work to be done" within the meaning of Lord Blackburn in *Dalton v. Angus*. In one common form of gantry the passer-by is excluded from the pavement and passes by the gantry under a covered hoarding. Hoisting is either done inside the gantry or the passenger is protected by the hoarding. This form of gantry would have interfered with the railway company's station entrance and shop, and his lordship thought that the jury were entitled to take the view that the railway company in looking after their own interests had neglected the interests of foot-passengers; and that as the railway company offered no explanation as to how the timber fell, the jury might come to the conclusion that it fell through the insufficiency of the gantry to stop it, the gantry having been sanctioned by the railway company. His lordship found, however, "that Dunkleys were negligent in that, having the management of the building operations, timber fell from their building . . . and he held that the railway company, who bound Dunkleys by contract to do this work, were liable for their negligence." Carrying on the building with safety to the public was the duty of the railway company,

At the Lambeth Police Court, on April 30th, Mr. Arthur G. Morrice, district surveyor, summoned Mr. C. W. Drew, builder, Fairview Place, Upper Tulse Hill, for failing to serve building notices with respect to work to a wall.—It appeared that defendant had inserted a damp-course in the wall of four houses, and on behalf of the district surveyor it was contended that notice should have been given of the work, which, it was urged, could not be called a work of repair, or, if it was, it materially affected the construction of an external wall.—Mr. Robert Milnes, architect to the trustees of Spurgeon's Orphanage, to whom the property in question belonged, said that the work done consisted of taking out two courses of old bricks and putting in an impervious joint consisting of two courses of slates in cement, and bricks. This was a necessary repair. It was admitted that the work involved the cutting through of the external wall for its entire length, the work being carried out in sections.—Mr. Francis, the magistrate, decided that this was work in respect of which the district surveyor was entitled to notice. Defendant was fined 5s. and £2 2s. costs on the first summons, and 5s. and 2s. costs on each of the others.





# ENQUIRIES ANSWERED.

## Concrete Testing Machines.

W. J. AND Co. (London) write: "One of our clients in the East has written asking us to send him catalogues and quotations for concrete testing machines, to test for both tension and compression strains. We shall be glad to hear from you if you can give us any assistance in the matter, and to know if you have ever heard of machines for testing concrete."

—Machines for testing cement and cement and sand briquettes both in compression and tension are made by several firms. The test of concrete on tension is a process which I have not heard of before; but compression tests in concrete cubes have been in vogue for a considerable period, and are of the greatest value provided they are numerous and are not confined to two or three cubes sent away to a laboratory. It is suggested in the R.I.B.A. Report that 4-in. cubes or 6-in. cylinders should be the minimum size of concrete test pieces for crushing, and these sizes are repeated in the L.C.C. Draft Regulations. They entail, however, provision for some means of exerting a pressure of about fifty tons, or else the expense of laboratory testing, which latter would tend to restrict the number of cubes tested. Considering that in beams extreme pressures are often exerted on very small areas of concrete, it would seem that the smaller the test cube the better criterion it would be of the concrete in the work. Messrs. W. and T. Avery make a 75-ton hydraulic concrete testing cube machine with an automatic pressure recorder, costing, I believe, about £80. If 3-in. cubes were recognised, a much cheaper lever machine would do the work.

P. J. WALDRAM.

## Orientation.

SANSEN writes: "Beyond the definition of Orientation furnished in Gwilt, viz., 'the deviation of a church from due east, it being supposed that the chancel points to that part of the east in which the sun rises on the day of the patron saint (this point, however, has not been fully investigated), I have no information. I should be obliged by some further particulars."

—Orientation, according to Russell Sturgis's "Dictionary of Architecture and Building," consists of the placing of churches so that the priest at the altar may face the east while celebrating Mass. It is thought that in the early days of the Church the priest, in some parts of the Roman Empire, stood on the other side of the altar from the worshippers, and that therefore the body of the church was placed east of the sanctuary; but that when the priest's position was changed so that he turned his back to the worshippers, then the church also was changed, with its main entrance toward the west and its sanctuary toward the east. The practice of Orientation in churches is by no means universal; in Italy it is much less observed than in the north of Europe. The great church of St. Peter's, at Rome, built upon the site of the early basilica, has its narthex at the east end and its sanctuary at the west.

The term "Orientation" is also applied to the placing of a building with reference, or apparent reference, to any special point of the compass. Thus the Greek temples have an orientation which involves the placing of the main entrance towards the east, or approximately so; the larger pyramids of Egypt have their

entrances carefully placed in a given special direction, and it is thought that in all these cases the rising point of a certain star, or some as yet unknown or misunderstood necessity, has determined the forms of orientation. In this sense the term is used very loosely, as, for instance, when it is said that the builders of Egyptian temples had little care for exact orientation, i.e., placed their buildings on axes not parallel with one another.

## Waterproof Roofing Material.

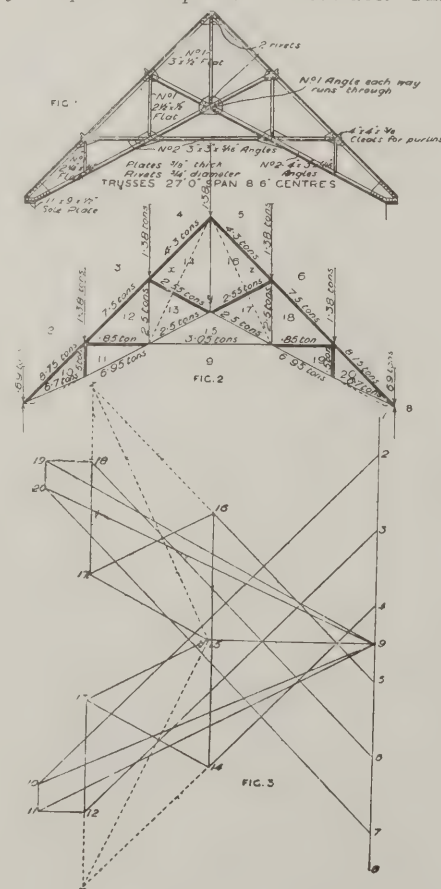
P. H. (Birmingham) writes: "Some years ago I used a waterproof roofing material which was of a gelatinous nature on a wire foundation and semi-transparent. I am anxious to obtain the address of the makers, whether still making it or not."

—To so vague a question it is impossible to make a definite answer. Possible addresses are:—The Wire-weave Roofing Company, 108, Queen Victoria Street, E.C.; or Permanite, Bank Chambers, Finsbury Park, N.

## Roof Truss for Assembly Hall.

STUDENT (Sheffield) submits a design for a proposed roof truss for an assembly hall and asks for advice with respect to the sizes of its members.

—In the design submitted the purlins are shown unequal distances apart and not over the joints, the consequence of which would be the production of a bending moment and greatly increased stress on the principal rafters. Fig. 1 shows the truss as it should be arranged, Fig. 2 the frame diagram, and Fig. 3 the stress diagram. As the site is not exposed the wind and all loads may be allowed for by assuming a distributed vertical load of 56 lb. per foot super. of roof surface. This



$$\text{will give a load of } \frac{8.5 \times 6.5 \times 56}{2240} = 1.38$$

tons at each principal joint and half at the eaves. In working out the stress diagram substituted members will be required as shown by dotted lines x, y, z, in order to get point 15. There is then no further difficulty. The stresses scaled from the stress diagram are marked upon the frame diagram, from which the scantlings may be calculated.

HENRY ADAMS.

## Effect of Insurance Act on Building.

T. W. (York) writes: "What is the general effect of the Insurance Act on the cost of building?"

—So far as the National Health and Unemployment Insurance Act, Parts I. and II., which is presumably the Act referred to, is concerned, the question of its effect on the cost of builders' work has been carefully gone into by the various builders' associations, and recommendations have been made as to the charges which require to be made to cover the cost of payments made and administrative services performed by builders in respect of this Act. It must also be remembered in this connection that the employers have to bear the whole cost of the Workmen's Compensation Act, and that of recent years the cost of compensation has grown so much that insurance companies have had repeatedly to advance their rates of insurance, which are now more than four times what they were prior to the passing of the amending Workmen's Compensation Act of 1906. It is therefore estimated that builders have to add to cover the cost of:—

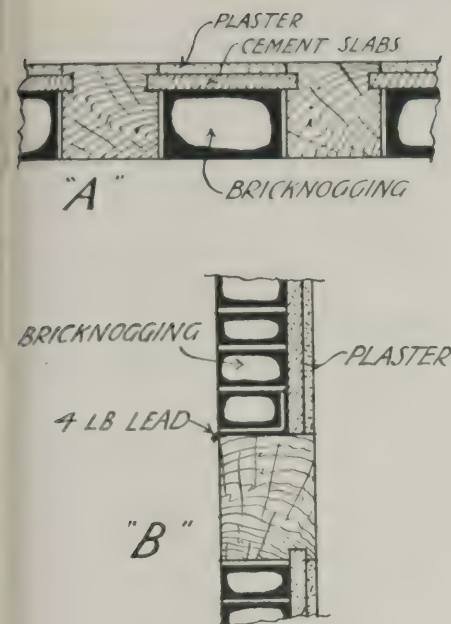
Contributions under N. H. and U. Insurance Act .....	1 1/2% on total wages paid.
Cost of W.C. Act .....	2 1/2% on total wages paid.
Cost of services performed by employers in connection with above Acts, such as purchasing stamps, affixing same, keeping records in wages-books, etc., reporting accidents, and so forth, which is estimated at .....	1% on total wages paid.
Total.....	5% on total wages paid.

When it comes to considering what percentage should be charged on the total cost of the work executed by builders (excluding any work done by sub-contractors on the builders' jobs), there are contingencies to cover, such as cases where a large portion of the wages would have to bear workmen's compensation premiums at a higher rate than the average, or where the work executed involved an unusually large proportion of wages as compared with materials. It is estimated therefore that in tendering a builder requires to add 3 per cent. to the total amount of each trade, which he executes direct, to cover the charges imposed upon the trade by the above Acts. A. G. W.

## Re-erecting Timber-frame Building.

O. M. W. (Hertfordshire) writes: "We have to re-erect, on a new site, an old timber-framed house of considerable size. We wish to have the old timbers showing both on the inside and the outside of the outer walls, but as these timbers are only some 6-in. or so in thickness, this means that the filling in between them would only be





quite thin, and we should be glad if, through your answers to correspondents, we were able to elicit a good suggestion as to a method by which a sufficiently dry wall and warm house could be obtained while still showing the timbers on both sides of the wall. This would be a comparatively simple matter were it not for the fact that we wish to fill in the panels again with the original bricknogging, which was built in specially beautiful old bricks, 9 ins. by  $4\frac{1}{2}$  ins. by 2 ins."

—This problem is one of considerable difficulty, and its solution will probably involve rather heavy expense. Probably the best solution would be to groove the sides of the vertical timbers half an inch back from the inner face as shown on sketch A herewith, and insert cast slabs of cement and sand gauged with one of the modern waterproofing additions, afterwards plastering the inner side flush with the timbering and filling in with the old brickwork set in mortar flush with the outer face. A strip of lead in each panel laid in as sketch B on the rail before filling in brickwork would make this point more secure. If, owing to the method of framing, it is impossible to fit cast slabs, it might suffice to fill in the bricknogging first, and dub out with tiles and cement (with similar admixture) to within  $\frac{1}{2}$  in. of inner face, finally plastering as before. Grooving of timbers and provision of lead weathering would be equally applicable in this case also. Efflorescence would probably ensue on the brickwork from this alternative—hence the first-named method is to be preferred if practicable.

Though one hesitates to recommend it for modern practice, since the traditions of its use have entirely faded, it is probable that the use of clay filling in half-timber construction was no bad expedient for exclusion of weather. When from any cause (such as shrinkage) water could enter the joint between timber and filling, clay would at once swell and close it, but our forefathers were probably more insensible to the appearance of damp than we are.

#### Book on Steam Plant, etc.

RED DEAL (Manchester) writes: "Please recommend a book on steam boilers, calorifiers, pumps, steam traps, and other engineering plant required in connection with the heating, hot-water supply, cooking and laundry appliances for public buildings and institutions."

—The recommendation of books is rather an invidious matter, and, as a

general rule, we would much prefer that correspondents, instead of putting the onus upon us, should procure booksellers' catalogues and make their own selection. With regard to the present query, we are advised that two books which would meet the requirement are—"Hot Water and Steam Heating and Ventilation," which is described as "a practical work giving descriptions and data of all materials and appliances used in the construction of such apparatus, rules, tables, etc., for the use of architects, builders, heating engineers, hot-water fitters, and all interested in heating and ventilation," by Alfred G. King, net 12s. 6d.; and "Experimental Engineering and Manual for Testing," for Engineers and for students in engineering laboratories, by R. C. Carpenter and Herman Diedrichs, of Cornell University, seventh edition, 25s. net. Both may be had at the net prices from Mr. B. T. Batsford, 94, High Holborn, W.C.

#### Interesting Buildings In or Near Blackpool.

INVALIDUS (Aberdeen) writes: "I should be glad if you could tell me of any interesting buildings which may be seen in the vicinity or within a radius of about twenty miles of Blackpool."

—Lancaster and Preston are within reach, and are more rich in interesting buildings than is Blackpool. Local guide-books will give the desired information.

#### Setting Up a Three-Screw Level.

TRIPOD (Bootle) writes:—Will you kindly give information on how to set up accurately the new type of level with three screws? Is it permissible to adjust slightly with any one of the screws during the time a series of readings are being taken? On the level tube of some levels there are what appear to be degree marks, and on the outer rim near the sun shade there are also marks from zero in both directions. How are these figures and marks used, and what for? Are the different eyepieces used for long and short range? If so, how would you test the range of each? Can you recommend a good book dealing with such questions?"

—The advantages of the three-screw level are (1) increased delicacy of adjustment owing to greater distance from vertical axis of instrument to screw adjustment; (2) impossibility of binding or straining screws or of rocking instrument, since a tribrach support must rest fairly on each of its points, whereas any one of four supports may be worked unevenly. In setting up the instrument, first work the screws so as to bring the parallel plates approximately parallel, then lay the telescope in line with any two adjoining screws and by working one leg of the tripod in the usual way bring the bubble on the long level approximately to the centre of its run. Next level the bubble on the short cross level by moving the same leg in directions at right angles to that just adopted. By thus getting the level roughly at correct setting-up subsequent adjustment is reduced to a minimum. The telescope can now be laid parallel with any two adjoining screws and levelled by revolving them in opposite directions. It is next turned through 90 degrees, so as to lie at right angles to its former position, and the bubble again brought to the centre of its run by working the remaining screw, when the adjustment should be complete, but this should be tried by laying it in turn parallel with each pair of screws. Once the instrument is in adjustment the screws must not be touched during a series of

readings; if the level varies owing to insecure base or other causes it must be set up anew and the readings repeated. The degree mark on the level tube are to assist in determining the central position of the bubble, which varies in length. Sliding spring clips are sometimes provided, which may be set by the gauge marks referred to at the exact length of the bubble in its central position. The marks referred to "near the sun shade" are, perhaps, the degree marks which, with slits or sights, are provided on some of the newer levels for taking rough inclines.

The two eyepieces supplied with most levels are for long and short range. The gain of power in one is attended with a comparative loss of light. The shorter eyepiece is preferred as admitting most light.

A good book on surveying instruments, with full descriptions of all patterns commonly in use, is "Field Work and Instruments," by A. T. Walmisley, published by Whittaker and Co., Paternoster Square, London, E.C., price 6s.

#### Stresses on Cranked Girder.

UNCERTAIN writes: "Please show how to obtain the bending moment diagram and shearing forces for a cranked beam of the shape shown in the accompanying sketch [reproduced among the figures illustrating reply], and loaded with equally distributed load along a horizontal line, similar to the case of a staircase stringer."

—A cranked beam, as in Fig. 1, is subject to the same bending moments and shear stresses as a straight beam of the same span and similarly loaded. In a staircase the load will be virtually uniform over the horizontal area, allowing for the landings and the steps to be fully covered, as the steps could not contain

Load  $\frac{1}{2}$  ton per ft. run horizontally  
Fig. 1

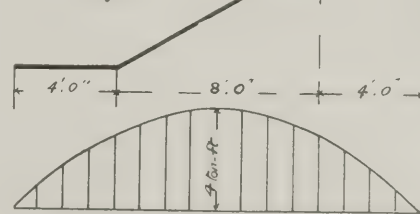


Fig. 2



Fig. 3

more people than the same horizontal length. It is a similar case to a terrace of houses of 20 ft. frontage on the slope of a hill, only the same number of houses could be built as upon the same horizontal distance. Assuming a load upon Fig. 1 of half-ton per foot span, the bending moment in the centre would be

$$\frac{wl^2}{8} = \frac{5 \times 16}{2} = 4 \text{ ton-feet, as in Fig. 2.}$$

The shear stresses would be as in Fig. 3, the maximum being at the supports

$$= \frac{wl}{2} = 4 \text{ tons. In practice allowance}$$

must be made on one of the bent strings for the weight of the lower flight of stairs resting upon the first landing, and for the upper flight resting upon the second landing. Such a case will be found worked out at p. 47 of "The Mechanics of Building Construction" (Longmans, 6s. net). It is convenient as there shown to make the





FIRST CHURCH OF CHRIST SCIENTIST, LEEDS: SELECTED DESIGN. W. PEEL SCHOFIELD, A.R.I.B.A., ARCHITECT.

bending moment diagram for the loads on the bent girder on one side of the base line and for the additional loads brought on to it by the upper and lower flights upon the other side of the base line.

HENRY ADAMS.

## COMPETITIONS.

### *First Church of Christ Scientist, Leeds.*

As already announced in our columns, the design by Mr. W. Peel Schofield, A.R.I.B.A., of Leeds, has been placed first by the assessor (Mr. Walter H. Brierley) in this competition, which was a limited one; designs by Mr. J. S. Gibson, F.R.I.B.A., and Mr. Sidney K. Greenslade, A.R.I.B.A., having been placed second (£50) and third (£30) respectively. We reproduce on this and the next page the first and second designs. The conditions asked for a church to accommodate 600 persons and a Sunday school, to accommodate 300, with president's room, board-room, and office, rostrum, readers' room, and large organ recess.

In Mr. Schofield's scheme the dome is the main feature in the planning of the church, which is top-lighted. The school is planned in a simple manner with the classrooms on the first floor. Externally it is proposed to use Portland stone for the dressings and ashlar, the dome and roofing generally being carried out in reinforced concrete. The interior will be carried out chiefly in Parian cement on wall surfaces, with a fibrous ceiling and ornament to the dome.

### *Elementary School, Harrogate.*

Mr. Sidney D. Kitson, M.A., F.R.I.B.A., the assessor in this competition, has made the following awards: 1st, Mr. C. H. Channon, F.R.I.B.A., of Malton, Yorks; 2nd, Messrs. Gascoyne and Nott, of Gray's Inn Square, London; 3rd, Messrs. Hickton and Farmer, F.R.I.B.A., of Walsall and Sheffield.

### *The Municipal Art Gallery, Dublin.*

At the recent annual general meeting of the Architectural Association of Ireland a resolution was passed expressing appreciation of the action of the Royal Institute of

the Architects of Ireland in recommending that the design for the proposed Municipal Art Gallery, Dublin, should be made the subject of competition.

### *Lunette Paintings for Fine Arts Academy, Bristol.*

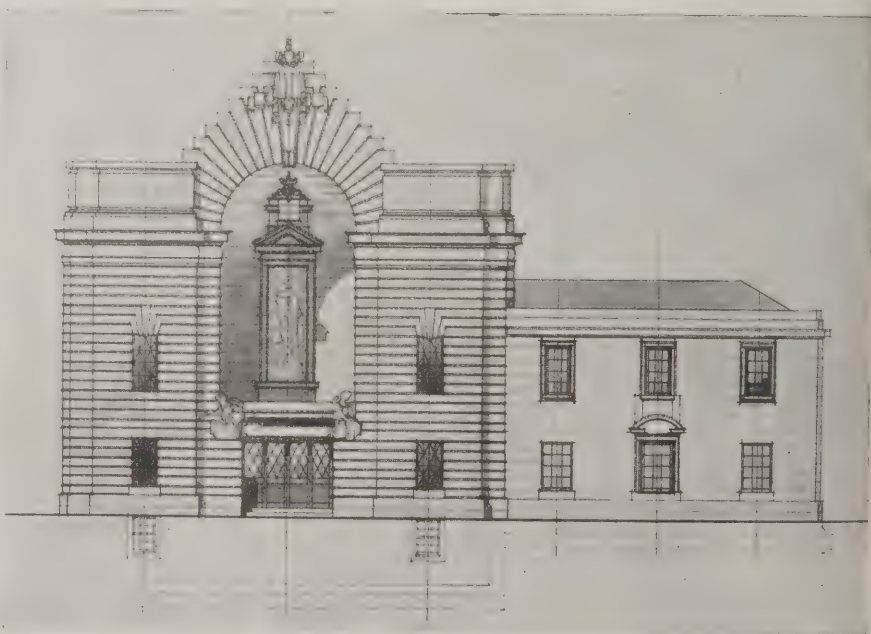
In connection with the improvement scheme now being carried out at the Fine Arts Academy, Bristol, under the direction of Mr. S. S. Reay, F.R.I.B.A., a competition for designs for lunette paintings in the staircase hall was held recently. Twenty-eight schemes were submitted. The space affords scope for rather large-scale pictures, the base of each segment being 24 ft., while the height at the centre is 7 ft.

The Council of the Fine Arts Academy invited the Professors at the Royal College of Art, South Kensington—Mr. Beresford Pite, Professor of Architecture; Mr. Gerald Moira, Professor of Painting; and Mr. W. R. Lethaby, Professor of Design—

to adjudicate the designs submitted, and they finally selected the design by Mr. Walter Crane, R.W.S.. Mr. Crane's four panels represent the arts of architecture, painting, sculpture, and craftsmanship.

## LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.

The following have been elected officers of the above Society for the ensuing year: President, Mr. A. E. Kirk, A.R.I.B.A.; vice-presidents, Messrs. G. F. Bowman and J. F. Walsh, F.S.I.; hon. treasurer, Mr. R. Fielding Farrar, A.R.I.B.A.; hon. librarian, Mr. G. J. Coombs, A.R.C.A.; hon. secretary, Mr. Wm. Whitehead, A.R.I.B.A.; members of council, Messrs. W. J. Morley, F.R.I.B.A., C. B. Howdill, A.R.I.B.A.; G. W. Smithson, A.R.I.B.A.; J. C. Procter, A.R.I.B.A.; J. E. Braithwaite, A.R.I.B.A., and Douglas Bowman (Associate member).



FIRST CHURCH OF CHRIST SCIENTIST, LEEDS: DESIGN PLACED SECOND. J. S. GIBSON, F.R.I.B.A., ARCHITECT.



## THE ARCHITECTURAL ASSOCIATION DINNER.

The annual dinner of the Architectural Association was held on Tuesday, May 6th, at the Trocadero Restaurant, Piccadilly Circus, when the chair was occupied by the President, Mr. Gerald Horsley, F.R.I.B.A. Among those present were Mr. Reginald Blomfield, A.R.A., M. A. Défrasse (Président, Société des Architectes Diplômés), M. J. Godfroy (Vice-President, Société des Architectes Diplômés), M. Héraud (Vice-President, Société des Architectes Diplômés), M. J. M. Poupinel (Secrétaire Général du Comité permanent International des Architectes), Mr. Charles Sims, A.R.A., Mr. Ernest Newton, A.R.A., Mr. E. Guy Dawber, Mr. George Hubbard, Mr. H. Pegram, A.R.A., Mr. John W. Simpson, Mr. Edward Warren, Mr. H. W. Wills, Sir Ernest George, A.R.A., Mr. W. Curtis Green, the Hon. Edward Strutt (President, Surveyors' Institution), Mr. Percy B. Tubbs (President, Society of Architects), Mr. F. R. Yerbury, Mr. E. P. Wells, Mr. E. J. Brown, Mr. Walter Lawrence, Junr., Mr. Henry Riley, and many others.

The usual loyal toasts having been observed, Mr. P. Cart de Lafontaine, proposing the toast of "Le Société des Architectes Diplômés et les Membres de l'Ecole des Beaux-Arts," referred to the exhibition of Beaux-Arts drawings, opened at Tufton Street earlier in the day by M. Paul Cambon, the French Ambassador in London. The exhibition, he believed, would help materially towards the establishment of an artistic *entente cordiale*.

M. M. A. Défrasse responded to the toast, expressing his appreciation of the Association's hospitality and the great personal pleasure which the occasion afforded him. He referred briefly to the Beaux-Arts training, emphasising the spirit of *camaraderie* which it inspired.

In conclusion, he extended to the A.A. an invitation to send to Paris, for exhibition by his society in 1914, a collection of

English working drawings and photographs.

Mr. Curtis Green, proposing the toast of "The Royal Institute of British Architects," endeavoured to establish the exact relationship of the A.A. to the Institute, arriving at the conclusion that the latter body was either a parent or an uncle, and more probably the former. There was something paternal in the readiness of the Institute to leave its offspring to look after itself. He understood that the Association was at present under a cloud, having incurred the paternal displeasure; its expenditure allowance was to be inquired into. He would refrain from mentioning the amount of the allowance; but if the Institute realised the magnitude of their (the Association's) task they would, he felt sure, allow an increase. They had, for instance, a most healthy athletic club which needed patrons. At preparatory schools he believed it was the custom to have an annual cricket match between parents and sons, and he thought it would help things all round if an event of that kind could be arranged between the Institute and the Association.

Mr. Reginald Blomfield, A.R.A., in reply, said the relationship of the Institute to the A.A. was undoubtedly that of a parent to its grown-up son. All wise parents left their sons to themselves sometimes, and suggested that they should rely on their own resources. But he was not to be taken too literally, and he was quite unconscious of the cloud to which Mr. Green referred. Dealing with architectural education, Mr. Blomfield said there was always a tendency under modern conditions to rush to the latest recipe. Ateliers had recently been started as the panacea for the shortcomings of modern architecture. He spoke with diffidence, but there was a good deal of misunderstanding with regard to ateliers. They might play a valuable part in a system of training, and that was the reason he watched them with benevolent interest. Some indiscreet layman said they had in

them the equivalent of the Ecole des Beaux-Arts in Paris; but that was not so. The ateliers in Paris circled round a school and the two were complementary each to the other. An atelier without a final school was like a horse without a cart, or a cart without a horse. He thought we were too much inclined to overlook what we had got at our own doors. The advantages of concentration on design and of association with students all having the same objects were present, with one or two others, in the architectural school of the Royal Academy. The conference between the R.A. and the A.A. had been very satisfactory, and as a result increased facilities of admission to the school had been arranged. Referring to Mr. Curtis Green's suggestion, Mr. Blomfield said he would be very happy to captain an Institute cricket team to play the Association.

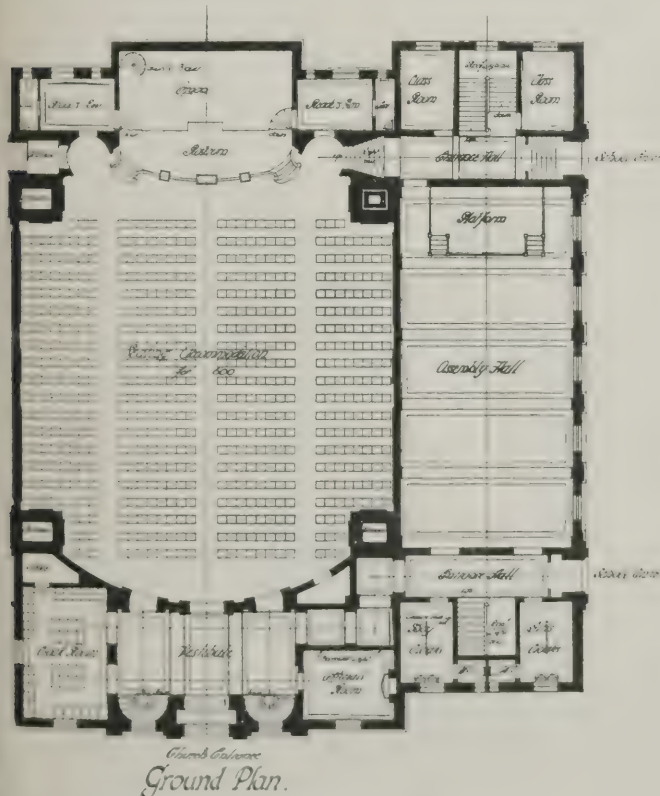
Mr. Charles Sims, A.R.A., then proposed the toast of "The Architectural Association."

Mr. Gerald Horsley, in reply, said the work of Mr. Sims had always appealed to architects, and they might congratulate him on the fact that one of his Academy pictures had just been purchased under the terms of the Chantrey Bequest for the nation. In the course of an interesting description of the Association's many activities, Mr. Horsley mentioned that they would shortly welcome a new headmaster to the school in the person of Mr. Robert Atkinson, Mr. Maule now being about to retire after 12 or 13 years of strenuous work in the interest of the school.

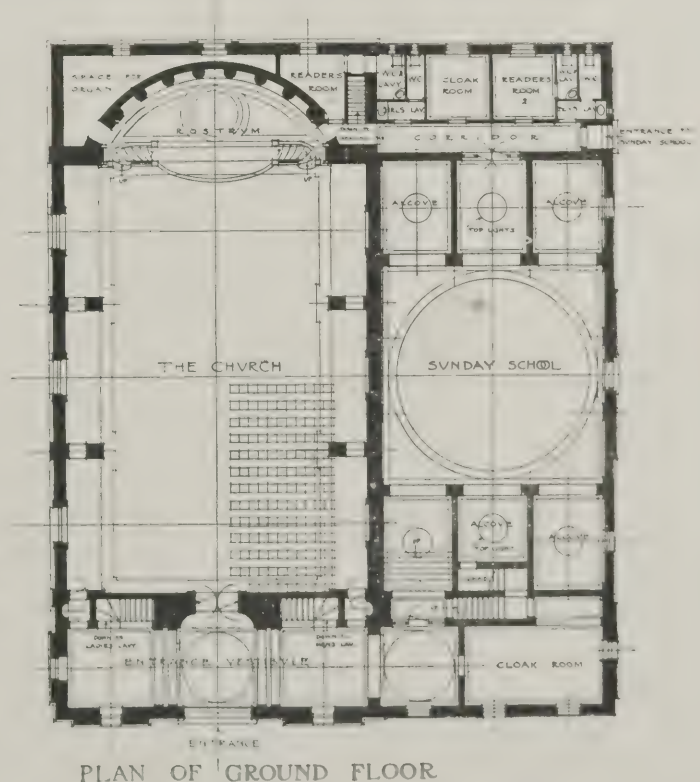
Mr. G. Leonard Elkington then proposed a toast which was not down on the list—"The Health of the President and of the Hon. Secretary," which was accepted with enthusiasm.

Mr. Ball and Mr. Horsley briefly replied.

Mr. Maurice E. Webb proposed the final toast of "The Guests," to which the Hon. Edward Strutt replied.



Selected Design. W. Peel Schofield, Architect.



Design Placed Second. J. S. Gibson, Architect.



## PROJECTED NEW WORKS.

### *The Palace Theatre of Varieties, Manchester.*

The Palace Theatre of Varieties in Oxford Street, Manchester, is to be extensively altered and redecorated. Mr. Bertie Crewe is the architect for the work.

### *Furnishing for New Municipal Buildings, Torquay.*

A Local Government Board enquiry was recently held at Torquay into the application of the corporation to borrow £5,000 for furnishing the new municipal buildings.

### *Concert Hall, Brighton.*

To provide a home for the Brighton Municipal Orchestra, a proposal is on foot for the erection of a concert hall at the Aquarium, with terrace over, at a cost of £12,000, and an approach from Madeira Drive.

### *Saltwater Baths, West Hartlepool.*

Through the munificence of Mr. William Gray, a shipbuilder, of West Hartlepool, salt-water baths are to be erected on the outskirts of the town at a cost of £4,000. The Corporation has agreed to take over the building and provide maintenance charges.

### *Rebuilding of St. Edward's Schools, Romford.*

A scheme for rebuilding St. Edward's Schools, Romford, is under consideration. The schools long since outgrew the accommodation provided by the founders, and new buildings have been needed for a considerable time.

### *Developments at Swanage.*

Swanage Urban District Council are considering the question of putting into force the Town Planning Act with respect to the Mowlem Estate, on the sea-front, which is about to be developed for building purposes.

### *A "Corner House" for the Strand.*

Messrs. Joseph Lyons and Co. propose to erect at the corner of Nos. 9 to 10, Strand, and 1 to 7, Craven Street, a replica of the "Corner House" in Piccadilly. The building is to accommodate 1,100 diners, and will probably cost £50,000.

### *Improvement Scheme, Harrogate.*

The Harrogate Town Council have adopted a scheme for improving Station Square, opposite the Queen Victoria monument, by leasing from the North-Eastern Railway Company a vacant piece of land, and laying it out as an open space.

### *Reinforced Concrete Viaduct, Dover.*

The Corporation of Dover are about to undertake the construction of a reinforced concrete viaduct in the Pier District according to designs and specifications prepared by Mr. W. C. Hawke, the borough engineer and surveyor. The work may be divided into three portions—the viaduct, the spur, and the widening of Limekiln Street, leading to the viaduct. The viaduct will be 610 ft. long by 45 ft. wide, between parapet walls, and the spur, 217 ft. long by 40 ft. wide, with three bridges—of bowstring type, carried out entirely in reinforced concrete.

### *Extension of Wellington Barracks.*

A considerable extension of Wellington Barracks—the barracks of the Guards—is about to be carried out by the War Office. A large stretch of York Street, running from the Buckingham Gate end on the north side almost to Queen Anne's Mansions, has been acquired. It is proposed to reconstruct the interior of certain flats in order to make them suitable for married soldiers'

quarters. The rest of the property will be demolished, and other buildings erected, including recreation-rooms and larger canteens than are already provided in Wellington Barracks.

### *The Rebuilding of Messina.*

It is announced that the Italian Ministry of Public Works have awarded contracts for the construction of various Government buildings at Messina at a cost of about £104,000. These buildings include a post-office, Customs house, and office for the city engineer. Other contracts, for buildings for the Prefecture, the Department of Justice, the Treasury, and the University, are to be placed shortly at a cost of about £20,000 each.

### *New Municipal Works.*

The Local Government Board have just held inquiries into proposed expenditure by public bodies as follows:—

Water Supply.—Easingwold Rural District Council, £8,657, for Coxwold, Craike, Easingwold, Newburgh, Oulston, Stillington, and Thornton, including 120,000-gallon reservoir near Oulston and works within the township of Byland-with-Wass.

Street Improvements, Public Walks, etc.—Knutsford Urban District Council, £5,000; Sandown Urban District Council, £1,100; Horsham Urban District Council, £1,600.

Various.—Swansea Borough Council, £24,000 for housing, £24,500 for extension of central police station; Glamorgan County Council, for lunatic asylum purposes, no amount stated.

### PROJECTED NEW WORKS IN LONDON.

London County Council Building Acts Committee have recommended consent to the following proposals:—

*Chelsea.*—Erection of a studio building at Cross Keys Yard, Lawrence Street, Chelsea, on the application of Mr. A. Bartlett, on behalf of Mrs. Carpmael.

*Chelsea.*—The formation of a new street for carriage traffic, to lead out of the north-eastern side of Vale Avenue, Chelsea, was sanctioned last year, subject to the condition that no building should be erected in the street unless the street were thrown open as a public highway. The committee now recommend consent to the erection of buildings abutting on the street.

*City of London.*—Erection of buildings on the western side of Bishopsgate, City, on the application of Mr. S. H. Burdwood, on behalf of Mr. T. Richards.

*Dulwich.*—Erection of two houses northward of No. 30, St. Aidan's Road, Peckham Rye, on the application of Mr. A. J. C. Ewen, on behalf of Mr. J. H. Coxon.

*Finsbury, Central.*—Erection of a building on the northern side of Whiskin Street, Finsbury, on the application of Mr. F. T. W. Goldsmith, on behalf of Spaulding and Sons, Ltd.

*Kensington, North.*—Erection of four shops on the western side of St. Hellen's Gardens, on the application of Mr. A. S. Franklin.

*Lewisham.*—Erection of a building on the north-western side of Brockley Road, Crofton Park, on the application of Mr. A. H. Attwater, on behalf of the Crofton Park Picture Palace, Ltd.

*Peckham.*—Erection of a one-storey shop in front of Nos. 78 to 84, High Street, Peckham, on the application of Messrs. North and Robin, on behalf of Mr. E. S. Edgar.

*Wandsworth.*—Retention of hoarding on conditions on which the Council has approved the formation of streets on the Elmwood House Estate, on the application of Mr. W. Campbell-Jones.

## OBITUARY.

### *Mr. J. Vickers Edwards.*

Mr. J. Vickers Edwards, the West Riding architect, died at his residence at Headingley on May 5th. Mr. Edwards, who was fifty-nine years of age, had suffered from lung trouble and bronchitis. He superintended the erection of a large number of buildings under the control of the County Council, and was one of the oldest public servants of the West Riding having acted not only as architect, but also for a number of years as surveyor of all the roads and buildings under the Council's control, and subsequently superintended the construction of elementary schools and police-stations. Among the buildings which he designed are the Menston, Scalebor Park, and Storthes Hall Asylums, the Teachers' Training College at Bingley, and the Cattal Inebriates' Home, in addition to the West Riding Constabulary headquarters and barracks.

### *Mr. H. Lovatt, of Wolverhampton.*

The death of Mr. Henry Lovatt, formerly of Low Hill, Bushbury, near Wolverhampton, one of the best-known building contractors in the country, has occurred at his Wiltshire residence. Mr. Lovatt established his business, known as Henry Lovatt, Ltd., in Darlington Street, Wolverhampton, more than a quarter of a century ago, and some of his contracts were on a big scale. His earliest important work was the building of the Whittington military barracks at Lichfield, and since then the firm have erected the Tidworth Barracks (Salisbury Plain) and the Portsmouth Barracks, while they are at present engaged in fulfilling a large contract with the Egyptian Government—erecting military barracks at Cairo. For several years past the firm have been engaged on the now practically completed extension of the Snow Hill Station (Birmingham) for the Great Western Railway Company. Mr. Lovatt was greatly interested in horticulture and sculpture, and was a frequent exhibitor at the Wolverhampton floral fête. He was eighty-two years of age.

## LONDON COUNTY COUNCIL.

### *The New County Hall.*

At last week's meeting of the London County Council a discussion took place concerning the rate of progress in the erection of the new County Hall. Mr. E. R. Debenham, vice-chairman of the Establishment Committee, said that in a month's time the new contractors (Messrs. Holland and Hannen) would be in possession of the site, and the work would then be pushed forward.

### *The Council and the Crystal Palace.*

The Council adopted a recommendation of its General Purposes Committee that the council should seek Parliamentary authority to subscribe £30,000 towards the purchase of the Crystal Palace and grounds. The committee reported that they had received a communication from the Lord Mayor of London pointing out that Lord Plymouth was willing to convey the property to trustees—either national or municipal, or both—for the price at which he bought it. Sir John Benn having stated that the Progressive members would cordially join hands with the dominating party in voting the money, the recommendation was agreed to without further discussion.



THE  
ARCHITECTS' & BUILDERS'  
JOURNAL.

Wednesday, May 21, 1913.

Volume XXXVII. No. 958.

No. 34.



(From Piranesi.)



BAS-RELIEF, "THE MOURNERS" (BRITISH SCHOOL AT ROME SCHOLARSHIP). BY GILBERT LEDWARD.

(See page 540.)



# THE ARCHITECTS' & BUILDERS' JOURNAL.

MAY 21, 1913.

CAXTON HOUSE, WESTMINSTER.

VOLUME 37. No. 958.

## Professional Status.

IN the course of a paper read recently by Mr. Ransome before the Society of Engineers he expresses the opinion that his profession would be better esteemed if it were so constituted that unqualified men could be excluded from its ranks. There is much in his paper that architects will read with interest and sympathy. He complains that, although the work of the engineer is indispensable to our civilisation, yet it is not praised nor held in public honour. It is true that most of us would be at a loss to give the names of even the greatest engineers. A few may know who designed the Forth Bridge, and we have all heard of Stephenson, but what of the others, equally brilliant, to whose genius we owe countless inventions that contribute to our welfare? In most cases theirs has been the reward of obscurity, and the consciousness of useful service performed. For although there are always a few sensational triumphs of engineering that appeal to the popular mind, such as motor-cars, aeroplanes, or a building thirty floors high, such things as road-making or sanitation, infinitely more important to the community and upon which amazing ingenuity has been expended, will never become subjects of general interest. Architects, too, have reason to protest against the lack of appreciation on the part of the public, and have protested so often that to continue to do so seems hardly consonant with their dignity. When the mayor of a town and the distinguished stranger lay the foundation-stones of a notable building, their speeches are duly reported in the newspapers, but the name of the architect is seldom mentioned.

In his suggestions for improving the status of his profession, Mr. Ransome does not make it quite clear what part he wishes the State to perform. In considering this matter one must distinguish between State protection and State control. It is one thing for the State to forbid anyone to practise engineering who has not entered one of the institutions which represent its special branches; it is a quite different thing for it to be responsible for the tests imposed. When Mr. Ransome says that "the climax of the period of pupillage would be a State examination," is he prepared to advocate a step which would inevitably lead to the rationalisation of his profession? Architects could not afford to look with indifference upon such an event, or it might be fraught with important consequences for themselves. A precedent would have been established, and many people would ask why it could not be applied in other quarters. But in the architectural profession no great body of opinion could be found in favour of surrendering complete control of its organisation, or of the tests to which its members should be compelled to submit. The status which is desired is something like what used to belong to the mediæval trade guilds that were afforded protection by the laws that they might more adequately, and yet with a considerable degree of freedom, perform the services society demanded of them. Unfortunately, these

guilds adopted a policy of selfishness, and an attempt was made, by limiting the number of their members, to command abnormally high wages. But there is no possibility that the Registration Bill which is being promoted by the Royal Institute of British Architects could lead to such a result. It has no sinister economic aim, but is merely concerned in raising the prestige of our profession by insistence upon a high standard of individual attainment therein. It does not even seek for power to forbid untrained persons to practise, but only to deprive such persons of the right to call themselves architects.

Since the members of the two professions are anxious that their position in the State should be legally defined, it might be well to consider the relation which one bears to the other. The time is fast approaching when architects will be unable to cope with the intricate problems of construction such as are involved in the modern business building. If they have an acquaintance with what is possible and what is not possible in construction, this knowledge would be all that is necessary for the purposes of design. But it would be an ill day if this admission that the expert's authority is supreme in these technical matters were held to imply that the architect's function was merely to cover or to decorate constructive forms. It is obvious, however, that in future there will be many occasions when architect and engineer must work in collaboration. For instance, if a large hall is being designed, its covering can be supported either by a few large supports or by a multiplicity of small ones. Both methods are equally possible; it is for the architect to decide the number and position of the supports, and the engineer must tell him what size they ought to be. But if left to himself the engineer would erect the building in the cheapest manner with little regard for its appearance. Too many columns may be introduced where spaciousness is desirable; the concrete beams that cut across the ceiling may utterly ignore the other prominent features of a room. Even in the case of a shop whose front consists of a stone facing to a steel-frame skeleton, the character of the building will chiefly be determined by the proportions of its façade and the disposition of its windows (matters which must be determined by the architect). Yet there are theorists who maintain that the truthful expression of construction is the most important element of beauty in design. But this is to elevate the means into an end. Sound engineering is necessary to the stability of a building, but it is not the purpose of the building. It is true that nobody likes to see façades resting on a plate of glass, but in this case it is not the apparent weakness of these structures that offends. Their firmness is never doubted. The fault really lies in the lack of connection between the stone of the façade and the stone of the pavement. A glaring gap has been introduced, and the building can by no means be considered as a unity.

This zeal for the expression of everything is founded upon a false philosophy. Before emphasising a



feature it is necessary to ask ourselves whether it is worthy to be emphasised.

That this fact is beginning to be apprehended is one of the most hopeful signs of our time. When we have achieved the reticence which is really nothing more than good manners in architecture, we shall be able to aspire to what Mr. Blomfield has called "the grand manner." But it is necessary that we should first be masters in our own household. E.

#### The Unfinished Embankment.

A CORRESPONDENT of the "Times" has raised a very pertinent question as to why the Victoria Embankment has been left unfinished. It is now forty-three years since the roadway was opened to the public, yet the river wall balustrade, the boat piers, etc., remain in very much the same unfinished condition as they were then. "The gas pipes then left protruding from the upper surfaces of the flat blocks at the boat piers and elsewhere (with a view to the provision of ornamental lamp standards later) have been removed and the holes through which they passed have been filled in with cement, but the flat surface of these numerous stone slabs is still in its rough state. Is it not now time that this magnificent boulevard be completed by the fixing of properly finished granite caps, or perhaps bronze terminals? . . . And now that the District Railway has been electrified it would be an advantage to remove the large granite ventilator casing nearly opposite the entrance to the police headquarters. It is a conspicuous eyesore, and is not now needed." This is indeed a matter that merits the attention of the Government. Bazalgette achieved a very fine work in constructing the Embankment, and the massive granite blocks and arched features which are set at intervals along its length deserve to be finished with the terminals that were originally intended to be set upon them. But these are too important to be left to any Government Department to design and erect without outside criticism. The occasion is one that demands an open competition. Bazalgette did his work well, and it would be a disaster if something trivial were erected on his massive blocks.

#### The London Plasterers' Strike.

AN important letter from the president of the London Master Builders' Association, which appears in the present issue, invites attention to the facts in the London plasterers' strike, which began on May 10th, "so that those directly interested, and the public generally, may have an opportunity of judging for themselves as to the employers' attitude." Accepting this invitation, we will as briefly as possible offer one or two comments on the subject. In the first place, we have no hesitation in saying that the plasterers were most unwise in deliberately omitting from their proposed new working rules the conciliation rule for the settlement of disputes, and that they were gratuitously aggressive in substituting for it a rule to the effect: "That at all times an official representative of the trade shall have free access to all works and shops." This is justly resented by the employers as "an outrageous demand," and one can quite understand that its formulation had immediately an exasperating effect. So preposterous a request is highly provocative of indignation. But were the employers therefore justified in refusing to meet the men in conference? We shall see. The employers told the operatives "that until the conciliation rule was reinstated it would be obviously useless to meet in conference to discuss their other suggestions." It may be asked, "Why 'useless'?" For the uselessness only becomes obvious on the assumption that nothing but what the men put forward could be discussed in conference, and that, consequently, the conciliation rule could not be reintroduced by the employers. If that is so, the etiquette of such

conferences becomes rather absurdly Chinese in its arbitrary restrictions. Nevertheless, the responsibility for the strike rests with the operatives, because it is quite clear that they have had an opportunity of amending their proposed rules in accordance with the request of the employers. If they have failed to avail themselves of this opportunity they have simply, in effect, refused to discuss a point which the employers, as the men well know, regard as being of vital importance. Unless they show themselves amenable to reason, they will not only forfeit the advantages which conference upon equitable lines would undoubtedly give them—in the matter of wages, for instance—but they will go a long way towards completing the ruin of their industry, because (largely in consequence of the intractability of the plasterers in the past) substitutes for plasterers' work are now quite plentiful and practicable, and are being every day increasingly adopted.

#### Westminster Hospital.

TWO or three years ago we advocated the removal of Westminster Hospital from its present site in Broad Sanctuary, where its presence is unnecessary and undesirable, because an equally or a more accessible situation could surely be found for it, and because a hospital is not the kind of building that should occupy so prominent a site. Now the authorities are seeking Parliamentary power to dispose of the site and to acquire land for the erection of a new hospital elsewhere, and arrangements are being made "for such a rearrangement of the frontage level as will enlarge the space of Broad Sanctuary and further improve its architectural appearance." Sir Henry Craik, M.P., is working with a similar object and altogether the outlook is rather promising for, at least, some degree of amelioration of the area that, as the seat of Government, and as including Westminster Abbey, is the most interesting spot in London. But it is certainly disconcerting to be told by Mr. Wedgwood Benn that the Government seem to be unable or unwilling to exercise any control in a matter in which their influence should be paramount. In particular, we should like to see a widening of the thoroughfare at this point, where the increasing amount of traffic creates constant delays and difficulties.

#### Costly Water.

BUILDERS seem to be taxed up to the hilt at every turn. More or less extortionate fees are exacted from them for almost everything they do or leave undone. Some amount of comic relief is afforded, however, by the grimly humorous basis of the extortion; as when, for instance, the surveyor calculates his fee for a £50 shed on the total cost of the large building to which it is appended, so that the amount of the fee may chance to exceed the cost of the work. The water used in building operations is another ever-flowing source of official humour. An instance is to hand from Swansea. The Corporation of that bounteously endowed borough have bethought them to impose on contractors a charge of 1 per cent. on the total cost of the works upon which water is used for building operations. One per cent. seemed small to them until a member showed them that at this rate the charge for water for the building of the new police station—a £24,000 job—would amount to £240. Even this proof by simple arithmetic that the charge is extortionate left them unrepentant, although they admitted that "large contractors would be unduly hit." Apparently a small contractor may be hit just as hard with impunity. As there were difficulties in the way of altering the charge, it was decided to adhere to the scale for twelve months, in spite of the protest of the local Master Builders' Association, who asked to be charged by meter—a reasonable enough request, and one that is amply sanctioned by precedent.



## WILLIAM FLOCKHART: AN APPRECIATION.

BY PROFESSOR S. D. ADSHEAD, F.R.I.B.A.

*[Specially Contributed.]*

TO write of the work of William Flockhart is to outline his character as a man. Some artists, perhaps owing to a natural shyness of disposition, or perhaps because more philosophic than emotional, are reticent in the expression of their personality; their individuality is revealed only in tendencies and general direction. Others, perhaps less philosophic, but possessed of abnormal imagination, leave a personal touch on everything they design. Such an artist was William Flockhart. Every detail of his work is his and his alone.

His worst critics might say of his work that it lacked restraint—they might even go so far as to say that it lacked repose, but no one could say that it was tame; and whilst there may be some truth in the suggestion

that it is restless, all must admit that such shortcomings were due not so much to the weakness of an artist as to the fickleness of a man. And it is easy to understand how to one with his nervous and not easily restrained temperament the attraction of sheer interest, piquancy, and variety was irresistible. That an overwhelming galaxy of ideas at times got the better of him must be allowed, but, even so, his underlying certainty of aim cannot be refuted.

His knowledge of detail and the repertoire he possessed of the work of past masters was exceptional, but his insistence on compliance with the demands of modernity never allowed him to become the slave of style.

With his highly strung nervous temperament and



No. 21, OLD BOND STREET, LONDON. THE LATE WILLIAM FLOCKHART, ARCHITECT.





WILLIAM AND MARY BEDROOM, "ROSEHAUGH." FROM A DRAWING BY THE LATE WILLIAM FLOCKHART.

his keen sense of form and colour it goes without saying that he was a draughtsman. As such he had a manner of his own which, for brilliancy, verve, and sparkle has not been surpassed. A drawing by William Flockhart means the exposition of a delicacy of touch and directness of execution which few can rival. He was one of those draughtsmen who possess the rare gift of seeing form not only as a series of straight lines and convex and concave curves, but in its lines of beauty also—a faculty which enabled him to indicate with ease and certainty the delicate ornament of the most finished periods. To watch his neat hand outline a piece of Louis XV. or Baroque decoration was to watch dexterity itself.

He was equally facile either with brush or pen, and many were the expedients and technicalities at his command—which he knew so well how and when to utilise. His pen drawings might imperceptibly be toned with a brush; he would gradate his ink, and shadows in wash, for directness, would often be ruled. He was an adept with the sponge, and body colour he would use to give quality, rarely to enhance light. But with all his artifice he was remarkably rapid and always direct.

No architect ever exhibited greater perseverance with design. In his attitude towards a conclusion he ever strained after a perfection that could never perfectly be attained. No design was ever regarded as a final conclusion, and to the last moment every scheme would be amended before necessity demanded its conversion into brick and stone. Revision after revision was his pathway to success. This is the attitude of every true artist towards design, but one which unfortunately is against method in its execution. It is to his credit, however, both as a man and as an architect, that no amount of duplication of personal labour, no amount of time spent in the persuasion of a client, no amount of difficulty with a builder, and no amount of trouble with clerks of works, surveyors, and assistants would deter him from recasting the most methodically prepared set of drawings, if by so doing he felt that something better would be achieved.

Of his executed designs a house for the Hon. John Collier, R.A., at Maida Vale, was one of his first commissions; but Rosehaugh, near Inverness, was his largest and most important work. In style the exterior resembles a Loire chateau of the François Premier period, with tendencies to contemporary work in Scot-



DESIGN FOR STRAND IMPROVEMENT SCHEME.



"ROSEHAUGH," ROSS-SHIRE.



land. Few modern buildings can show such a wealth of interest in their detail or assume an outline so sensitively picturesque. On the whole, it is perhaps too broken up, but in criticising it in mass it must be remembered that it was really an extension and not an entirely new building, and that the original square block which it enclosed, and which he cased up, gave great trouble in the matter of window spacing, creating difficulties which it was impossible entirely to overcome. In J. D. Fletcher, Esq., the owner, he had a client who, recognising his abilities, allowed him to exercise every resource of his vivid imagination, and, being practically uncontrolled in the matter of cost, he collected together a storehouse of art treasures which included only unique and the very finest specimens of their several periods; and it may be said without in any way overrating his qualifications that only his peculiar genius for collecting the best of old work, and for giving it its correct setting, was equal to the task of producing such a suite of apartments as may here be seen. To design rooms to receive Bouchier tapestries, a Rafaelesque ceiling, a Grinling Gibbons door, a Dutch chimney-piece, some rare painted leather, the finest of Venetian velvets, or the most perfect specimens of Renaissance glass, and in so doing to permeate the work with that perfection of style which he attained, was a task that demanded no ordinary ability.

Other important commissions which he carried out were town houses for Sir Frederick Merrieles in Hertford Street, for Sir Stuart Samuel, Bart., in Hill Street, and for Mr. Patrick Ness at Palace Court.

Of country houses, Pasture Wood, also for Sir Frederick Merrieles, and a house at Henley for Sir Charles Henry are characteristic examples.

But perhaps his business premises, and in particular 21 and 22, Old Bond Street, and 47 and 48, New Bond Street (both for Messrs. Duveen), will rank among the best known of his executed works.

His exceptional gift for designing decoration brought him many commissions in connection with the fitting out of ships, and only quite recently he completed the furnishing and decoration of two of the Canadian Pacific liners—the Empress of Britain and the Empress of Ireland.

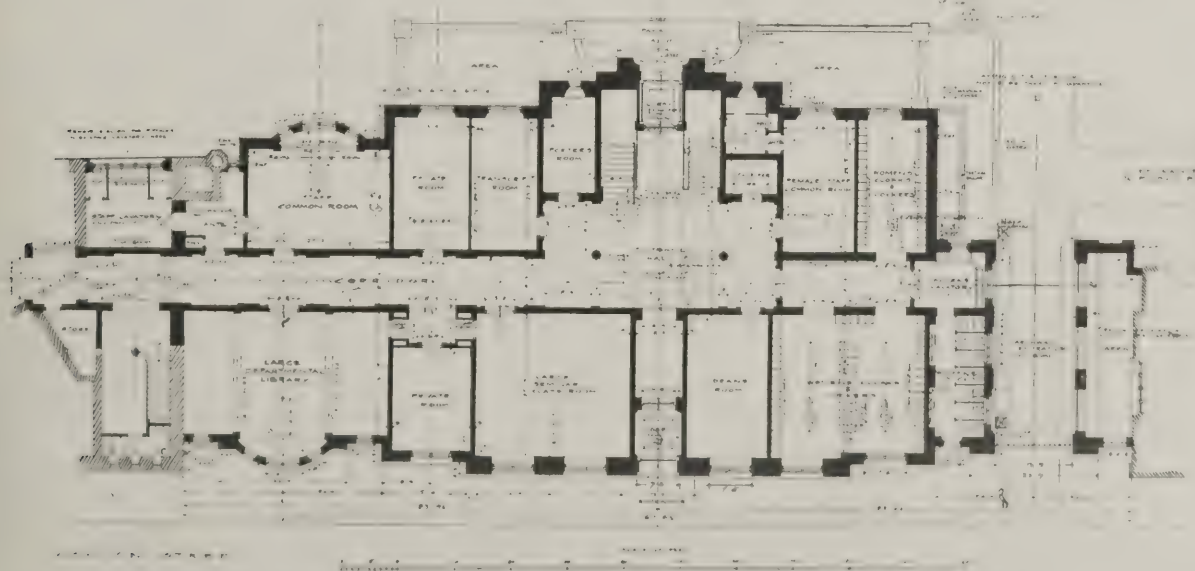
He did very little competition work, but towards the latter end of his career was invited on several occasions to enter the lists. The design which he submitted for rebuilding Kingsway, and the brilliant perspective he showed of it in the Academy, will be remembered as a notable contribution to the street architecture of his time. In the Wesleyan Hall com-



THE HALL, "PARKWOOD," HENLEY-ON-THAMES.  
THE LATE WILLIAM FLOCKHART, ARCHITECT.

petition he was one of the six chosen to compete in the final round. But perhaps his greatest effort in competitive work was in connection with the County Hall, for which he was one of those selected to compete with others chosen out of the earlier open competition. He certainly justified his nomination, and it is generally understood that his design was regarded as second on the list. It was a painstaking and brilliant effort, and had he been placed first the Embankment might have been enriched with a monument which, for a fairy-like delicacy of outline, interest, and fine character would have surpassed everything of its kind.

His loss, which will be keenly felt not only by all who knew him, but by the whole profession, has occurred too recently to allow of anything being said about him as a man, but certainly a more genially-disposed, straightforward, honest, and sympathetic personality never graced the profession.



ARTS BUILDING, LIVERPOOL UNIVERSITY. BRIGGS, WOLSTENHOLME AND THORNELY, AND F. W. SIMON,  
ASSOCIATED ARCHITECTS. (See page 540.)



## HERE AND THERE.

FROM time to time as I walk along the street my ear is attracted by a hissing sound, and on looking up I see a workman perched on a cradle, enveloped in a cloud of steam. That workman is but making one further use of a force which James Watt, musing over his kettle, had foreseen a hundred and fifty years ago. He astonishes the crowd below, who stand interested spectators of this magic process of removing the grime of years, but, for my own part, I like him not. Almost without exception he is at work on a building whose tawdry façade has been overspread by the veil of Time and Weather, under which kindly dispensation the architect's awkward shapes have been softened and his detail smothered up. In this way the building has lost its aggressiveness, and we pass it probably unnoticed. But the workman with his steam nozzle brings back all into prominence again, and we are startled by perky little birds hopping in and out of Gothic foliage around the window top, by long panels of that Italian arabesque which has helped to dull the wits of art students throughout the country, or by a medley of lions' heads and mock-acanthus and frets and fribbles in stone which constitute the stock-in-trade of the mediocre carver. Here we may take occasion to consider the whole question of cleaning buildings. There is the entire gamut before us in London, from the Savoy Hotel, with its nice clean face every May, to the Houses of Parliament, with its choked hundreds of Tudor roses and portcullises. The point at issue is, of course, as to how long we shall allow the soot and dirt of a polluted city atmosphere to settle on our architectural projections and embellishments. When these latter are in Portland stone and on a side that gets swept by the winds and rains, the result is a glorious whiteness with dark patches in the shaded portions—as, for example, on the west front of St. Paul's. But where no such cleansing elements can come into play, a dead dulness settles upon the fabric, and, unless we are going to approve the apotheosis of soot, a hose and brushes should find high commendation. In this matter, as in most others, Plato's golden mean is the ideal to adopt. Turning to the Houses of Parliament again, it is at once obvious that the present condition of much of the enrichments is deplorable; soot and dirt have covered the carving like a blight, and are slowly eating away the stone: the result of which must inevitably be a wholesale replacement and recarving in the not very far distant future. Yet, if the building had had a periodic cleaning and washing down on those sides which were not beaten upon by the weather, much of this sooty deposit would have been cleared away before it became incorporated with the surface of the stone.

\* \* \* \*

To combat the effects of smoke-laden city atmosphere, the ceramicists have long been clamouring for streets of impervious-fronted houses, and Mr. Halsey Ricardo, in particular, has made some very original attempts in polychrome house-building. The introduction of a newer kind of ware with a semi-glazed surface has also shown the possibilities of ceramic façades, but it seems to me that the latter have suffered egregiously from over-elaboration of detail. On the outside of a building ornament does not look its best when new, especially if it is in high relief—even the Greek temples must have appeared harsh when first finished, and Gothic colour schemes quite blatant.

With ceramic fronts, therefore, the method to adopt should be to keep all ornament as flat as possible, to use bas-relievo instead of alto-relievo, and to employ

delicate mouldings to cornices, strings, and other projections.

\* \* \* \*

The Local Government Board, I notice, have approved a number of schemes for the erection of sanatoria under the Insurance Act. There is grave doubt, however, as to which is the proper way to deal with the scourge that causes such a wastage among the population of Great Britain every year, and it will be a profitless use of public money if, after all, it is found that all this housing in big buildings is a mistake. I cannot claim to speak with any authority on this matter, but so far as I am able to gather from a study of the opinions of a number of medical men and some architects there seems to be an ever-increasing tendency towards isolation in temporary huts. In the case of disease we are constantly having to unlearn to-day what we were taught yesterday. Measles, for instance, formerly regarded as so trivial an ailment, is now dealt with as a serious affliction is so far as it prepares the way for other diseases, and the treatment of tuberculous patients would seem to be similarly in a state of change. In the end, instead of having buildings like the King's Sanatorium, with a central administration block and a patients' block spreading out arms to get as much sunlight as possible on to its balconies and into its rooms, we shall more probably have a colony of separate huts ranged around a central administration building, and after this colony has been in use for a certain number of years, and the area has become infected, the whole will be burnt down and a fresh start made elsewhere. Sanatoria on this system will be far less expensive than the existing ones, and probably far more successful in results.

\* \* \* \*

Many questions have been asked about Noah and his Ark, not the least being Mr. James Welch's. It is, however, no part of my present intention to enter into topographical matters concerning the locus, nor to raise any points as to sanitation or ventilation, nor to ask what high precedent there is for giving Noah a tall black hat. I have in mind the architectural side of the matter only, and I would like to know why Noah should be monopolised by the Goths. On reference to the narrative, and by making a little calculation, I find that the Ark was 450 ft. long, 75 ft. abeam, and 45 ft. deep, built of gopher wood (which is variously identified with cypress, pine, and cedar). Our latest battle-cruiser is, I believe, 660 ft. in length, so that the building of the Ark, which occupied Noah and his three sons—and possibly his wife—between fifty and a hundred years was a very creditable performance; indeed, as Noah when he started on the work was 500 years old, it must be regarded as a positive hustle, and an entire refutation of the modern dictum, "too old at sixty." The gaily painted models of childhood show the Ark to us as a one-floor house with a high-pitched roof, resting on a boat, and there is, I believe, a church at Brighton built after this fashion; but the narrative says that the Ark was of three floors, divided into rooms, and pitched within and without. The Gothic roof is a flagrant affront to architectural polity. Let the evidence and argument be set down very briefly. After the 150 wet days Noah, we are told, "removed the covering of the Ark." One of his son's sons built Nineveh, which was Assyrian, and the Assyrian houses had flat roofs. This builder must have learned his art originally through Noah. Ergo, the Ark had a flat roof—possibly a tarpaulin! So let the Goths no longer delude us. For, if a Gothic Noah's Ark, why not a Classic one—an Ark in the Grand Manner—even one with an Arcade?

UBIQUE.



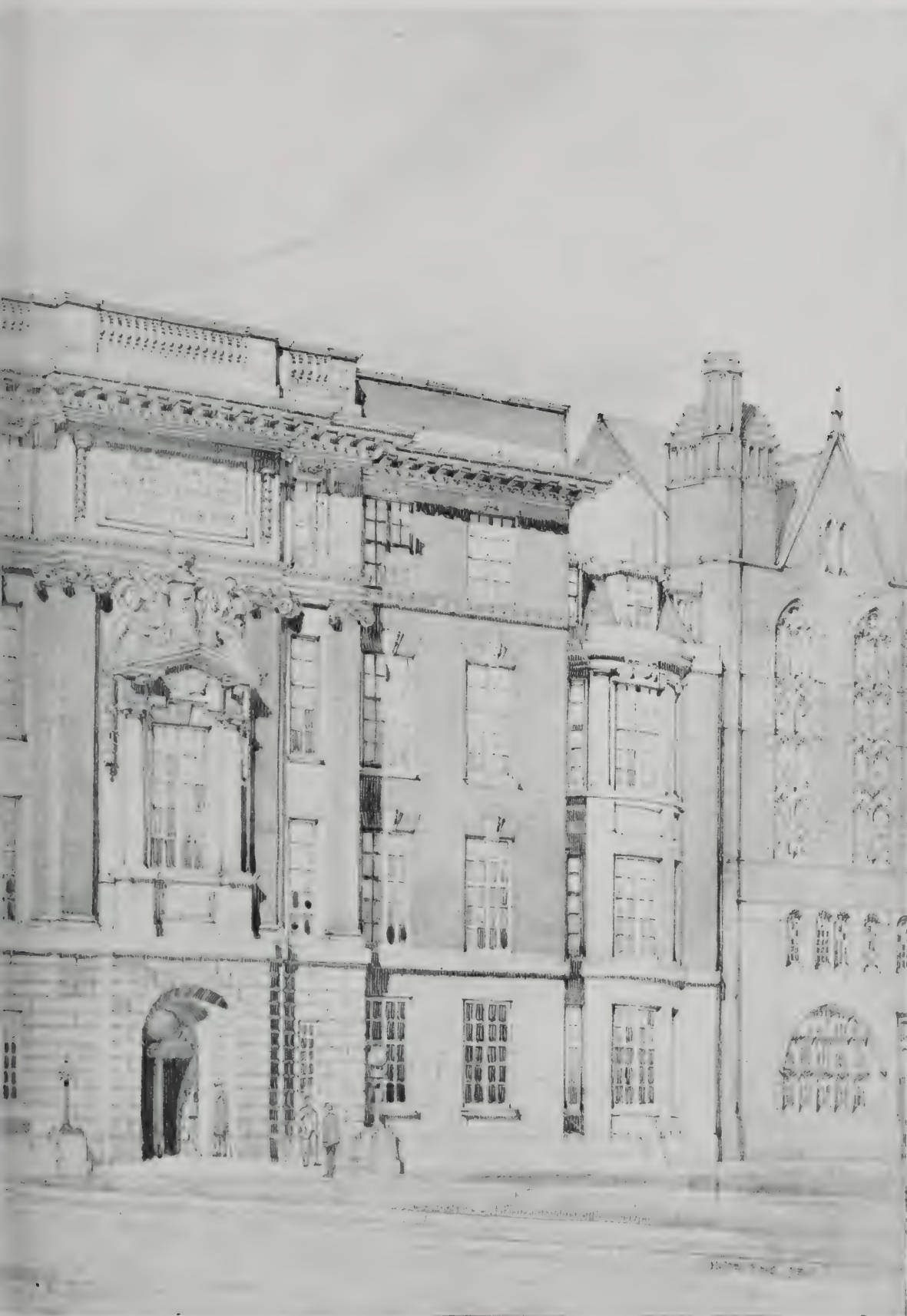




NEW BUILDING FOR THE FACULTY OF ARTS, LIVERPOOL UNIVERSITY. B

(Royal Acad





WOLSTENHOLME, AND THORNLEY, AND F. W. SIMON, FF.R.I.B.A., ARCHITECTS.

(Exhibition, 1913.)





## CORRESPONDENCE.

*The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents. Correspondents are asked to be brief, and to write on one side only of the paper.*

*Local Museums.*

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—I was much surprised to see in your issue of May 7th, under the heading "Godalming Town Hall," the views you express on the subject of museums. By all who have given due consideration to the matter it is agreed that in every centre there should be a museum where objects of local interest may be safely housed. Why should your journal, which in many ways is so enlightened, adopt such a reactionary and shallow view? The exact scope of any local museum must be a subject of careful discussion, but to all readers of your journal surely a collection of old maps, prints, and drawings showing the town in bygone days, of books illustrating the history of the neighbourhood, of photographs and measured drawings of interesting buildings likely to be demolished, of portions of such buildings such as fireplaces, doorways, etc., of old locally made furniture, of obsolete utensils of household or agricultural use, must be of the greatest interest.

In forming collections for a museum of this class the object for which the museum is started must always be kept in view. "A miscellaneous collection of objects" of all sorts and kinds is not required, and those in authority must be as firm in declining to accept unsuitable exhibits (even when offered by a local magnate) as they must be energetic in trying to collect those that are necessary to illustrate the full scheme.

Anybody who is really interested in architecture, in archæology, and in history must surely wish all success to any well-thought-out proposal for a local museum at Godalming.

London, S.W.

V. A. FLOWER.

[The museum which is customarily provided in small towns is, we still contend, of very little interest to the public, who are not attracted by a collection of fossils, bead-work from Madagascar, paintings on shells, and other oddities; but we quite agree that a museum of local antiquities, illustrating local history, should prove of great interest and value. The difficulty is to provide it.—EDS. A. AND B.J.]

*The London Master Builders' Association and the London Plasterers' Strike.*

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—In view of the statements which have appeared in the public Press concerning the above strike, which commenced in London on Saturday last [May 10th], when the men left work, I ask your indulgence in publishing the following facts, so that those directly interested, and the public generally, may have an opportunity of judging for themselves as to the employers' attitude.

The plasterers, like all other branches of the building trade, having come to the conclusion that the time had arrived when their rate of wages and working rules (which have been in existence in their case since 1906) should be reconsidered, gave this association the necessary six months' notice in November last, submitting at the same time a suggested new set of working rules and asking for a conference. From these suggested new rules the conciliation rule for the settlement of all disputes that might arise from time to time was deliberately omitted, and a rule to take its place was inserted as follows:—"That at all times an official representative of the trade shall have free access to all works and shops." Such a substitution for the conciliation rule would, I submit, be giving up the last atom of control

into the hands of the men, and I cannot imagine an employer with any self-respect submitting to such an outrageous demand.

My association replied that until the conciliation rule was reinstated it would be obviously useless to meet in conference to discuss their other suggestions, and, further, that it wished a new rule included in any new agreement in addition to the conciliation rule, to the effect that no objection was to be taken to a workman because he was or was not a member of a trade society, which, with the conciliation rule, had been accepted by the carpenters and joiners, stonemasons, bricklayers, and smiths and fitters in their new agreements.

The plasterers have refused to accept the principle contained in either of these rules, and I feel sure the builders of London will receive the commendation of every fair-minded man in their fight for a principle which is of such vital importance, not only to every employer of labour, but to the community at large.

I am pleased to say that my association has the unanimous support of all the important master plasterers in London, who attended a large conference on the 6th inst.

WALTER LAWRENCE, jun.,

President, London Master Builders' Association.

## OUR PLATES.

*New Children's Hospital, Birmingham.*

WE illustrate on page 545 the new children's hospital which is to be erected at Birmingham. The site faces Ladywood Road, and has an area of 7,500 sq. yds. The administration block will be of five floors. The accommodation on the ground floor is shown by the plan reproduced. On the first and second floors are rooms for the female resident medical officers, matron, nurses' dining-room, servants' recreation room, and the nurses' and servants' bedrooms, whilst on the third floor is arranged the cookery department, comprising a large central kitchen, around which are grouped the smaller rooms—scullery, larders, dairy, etc. (This department, being centrally situated, gives convenient service by means of lifts to the several dining-rooms and also to the patients' ward blocks.) Advantage is taken of the fall in the roadway to form a lower ground floor to the administration block, chiefly set apart for X-ray and other electrical treatment; here, also, are rooms for the resident porter, cycles, and general stores.

At the rear of the administration block, on the ground-floor level, is the reception department, where incoming patients are examined prior to entering the wards.

The wards for patients are planned in two pavilions inclined at an angle towards one another in order to afford shelter from cold winds. In the centre, joining up the two pavilions, is the main staircase, with central lift for conveying patients to the upper floors. The pavilions are three storeys in height, thus giving six-ward units, three being for medical cases and three for surgical cases. Each ward unit comprises one large ward containing fourteen beds, one small ward containing five beds, a single-bed observation ward, and a small three-bed high-temperature ward for changing dressings, giving a total accommodation of 138 beds.

With a view to the application as far as possible of open-air treatment, the south fronts of the large wards are to be fitted with collapsible screens, which will allow the whole frontage being thrown open to the sun and air, and it will be noticed that on the front of each open ward is a small heated room where dressings may be changed and patients examined. The bathrooms have been made large enough to allow two cots to be wheeled in at a time and the patients to be bathed in a warm room.

The operating department is placed at the junction



of the two-ward pavilions, and one storey above the level of the top ward floor. Convenient provision is made for future extension of both the ward pavilions and corresponding administrative accommodation. Lower down the site is a separate laundry building, under which are placed the heating boilers and engineering department, whilst a small adjoining block will be devoted to pathological work.

For the present it is proposed to carry on the out-patient work in the existing building in Steelhouse Lane, but sufficient area of the new site is set aside for the erection of an out-patient block in the future.

The buildings are to be carried out in red sand-faced bricks with stone dressings. Mr. F. W. Martin, of Birmingham, is the architect.

#### *Sculpture Scholarship, British School at Rome.*

Considerable interest attaches to the newly-instituted scholarship in sculpture at the British School at Rome (of the value of £200 per annum, and tenable for three years). As already announced, four competitors in the preliminary open competition—C. S. Jagger, Gilbert Ledward, Harold Brownsword, and F. J. Wilcoxson—have been selected to compete in the final competition. In this issue we illustrate the bas-reliefs and figures submitted by Mr. Ledward, Mr. Jagger, and Mr. Brownsword, all of which, it will be admitted, are very commendable examples of work, Mr. Ledward's bas-relief of "The Mourners" (illustrated on page 532) being especially well conceived and executed. The panels are 2 ft. 6 in. long and the figures about 4 ft. high.

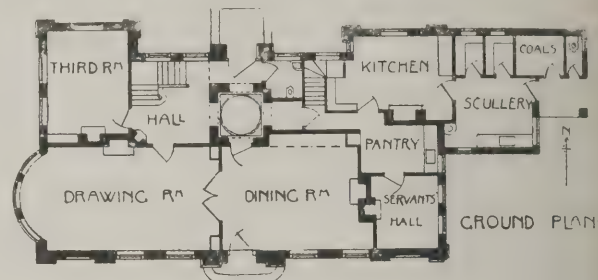
#### *Courtyard of the British School at Rome.*

As the twenty-sixth example in our series of working drawings by well-known architects we illustrate a detail of Mr. E. L. Lutyens's original scheme for the British School at Rome, showing a section through the internal courtyard. Since its inception, however, this scheme has been considerably revised, and the drawing does not show the work as actually carried out. The walls are of brick with stone dressings and the columns

of concrete encased in cement. Roman pantiles are shown on the roof.

#### *House at Farnham, Surrey.*

We illustrate on page 540, as the tenth example in our new series of domestic architecture, a house erected at Farnham from the designs of Mr. Harold Falkner. This house is built of red bricks and roofed



with tiles, the pilasters being of plaster. The ground-floor accommodation is shown by the plan reproduced above. Messrs. Hendon and Mills, of Farnham, were the builders.

#### *Arts Building, Liverpool University.*

As the Centre Plate in this issue we illustrate a perspective drawing of the new Arts Building at Liverpool University, now in course of erection from the designs of Messrs. Briggs, Wolstenholme, and Thornely, and F. W. Simon. The building communicates on either side with the existing University buildings, and where some old structures at the rear are pulled down it will form the fourth side of a quadrangle. Externally it is faced with Portland stone and thin red Sutton Oak rustic bricks. Mr. Birnie Rhind, of Edinburgh, is responsible for the sculpture, including the figures over the entrance and the four sphinxes on the Ashtor Street front. Messrs. J. Henshaw and Sons, of Liverpool, are the general contractors. The drawing which we reproduce is included in the present exhibition at the Royal Academy. A plan of the building is given on page 537.



Figure by C. S. Jagger.



Figure by Gilbert Ledward.





"The Entombment." By Harold Brownsword.



"Bacchanalia." By Charles Sargeant Jagger.

BAS-RELIEFS, BRITISH SCHOOL AT ROME SCHOLARSHIP.

(See page 540.)

UNIVERSITY OF ALABAMA  
LIBRARY  
SERIALS

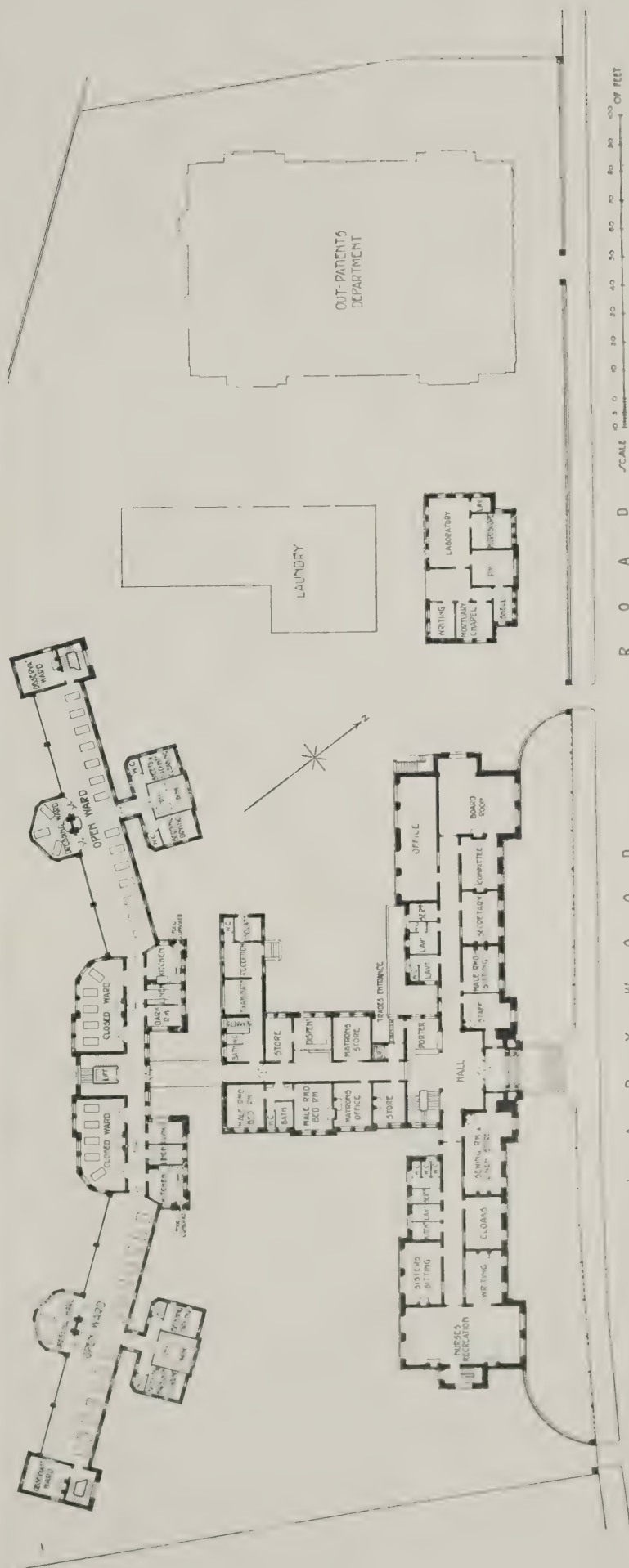




MODERN DOMESTIC ARCHITECTURE. HOUSES OF INTERMEDIATE SIZE. X.—HOUSE AT FARNHAM, SURREY.  
HAROLD FALKNER, ARCHITECT.  
(See page 540.)







L A D D Y W O O D

R O A D S C A L

## 1271 of fleet

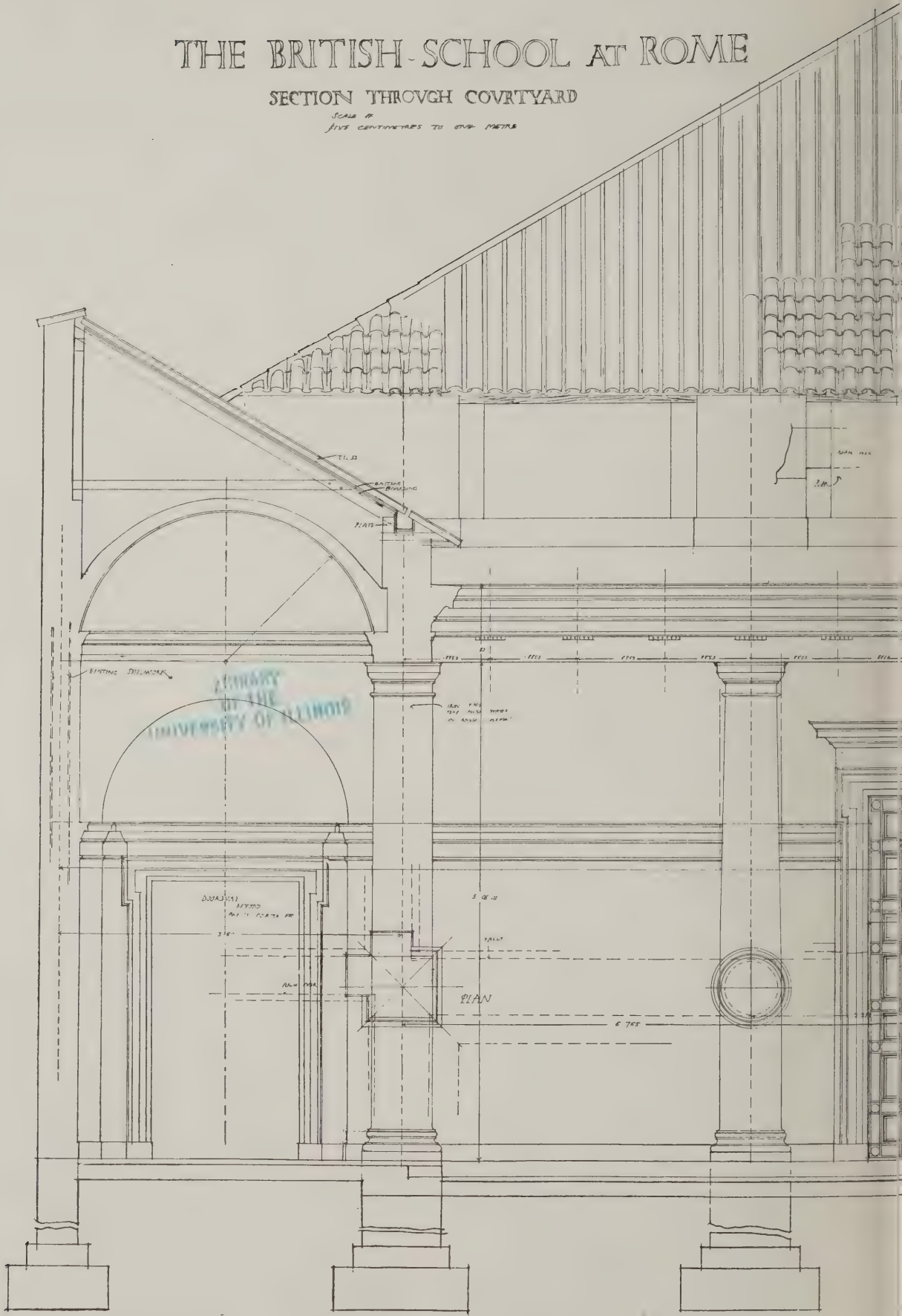
NEW CHILDREN'S HOSPITAL, BIRMINGHAM.  
(See page 539.)

F. W. MARTIN, ARCHITECT.

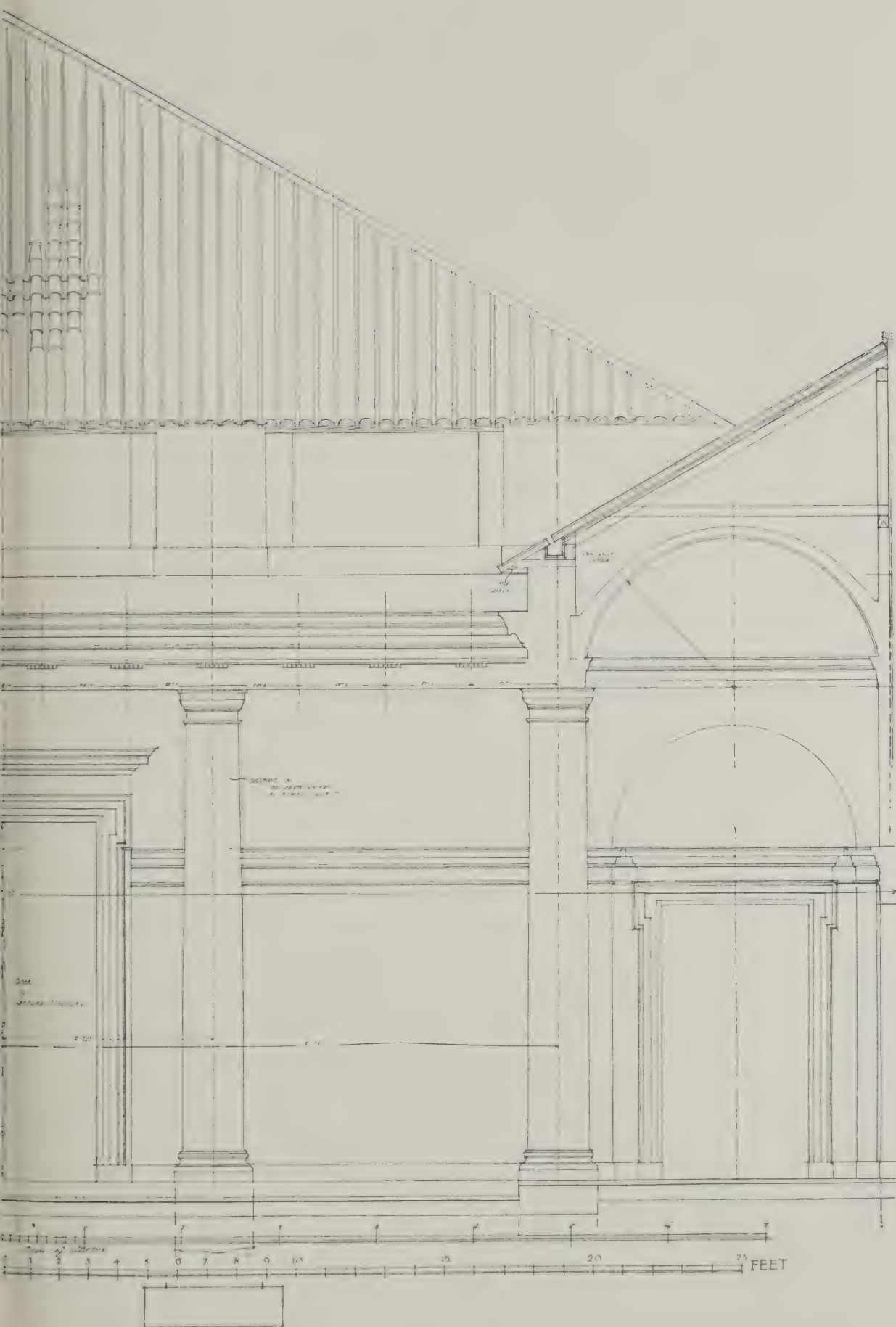
(See page 539.)

THE BRITISH SCHOOL AT ROME  
SECTION THROUGH COURTYARD

SCALE 1/10  
FIVE CENTIMETRES TO ONE METRE







## MODEL ANSWERS TO R.I.B.A. EXAMINATION QUESTIONS.

## INTERMEDIATE EXAMINATION.

BY G. E. FRANCIS.

## HISTORICAL ARCHITECTURE.—(c) FRENCH AND ENGLISH GOTHIC.

(Continued from page 525, No. 957.)

## 4. Compare the west front of a typical English and French cathedral. Illustrate with sketches.

*Answer.*—The Cathedrals of Wells and Notre Dame are selected as being characteristic examples of English and French work.

More has been written about the western façade of Wells than about any other part of the cathedral, and that of Notre Dame is certainly the finest composition in Gothic France.

The greater height of the French nave vaults is responsible for many of the international differences—i.e., English examples are made to appear broad and low; and, despite the height of the nave roof in France, the gable end is usually masked by a screen, while in England, although so much lower, the gable form is preserved.

Two towers are invariably employed in both countries. Those in France, although some of the highest in existence, scarcely rise, in many cases, above the nave roof.

The gable end of the nave is further emphasised in England by the huge pointed window usually employed, or, as in the case of Wells, by a group of three. In France the great rose window is a characteristic feature.

A most marked difference is to be found in the doorways, which, although usually three in number in both countries, present the greatest possible contrast in size.

The French examples are huge, and are generally ornamented in the most profuse manner with foliage and statues.

At Wells the doors have been called rabbit-holes, and are, indeed, very small and insignificant.

Statues in niches were employed profusely in England, and to a lesser degree in France.

## 5. Describe and sketch the following: Miserere, lierne, chantry, oriel, poppy head.

*Answer.*—(a) A miserere is a hinged seat in a choir stall, which, when turned up, affords a higher support as a resting place for a singer when standing. The underside is frequently carved with delicate foliage, grotesques, and flowers.

(b) A lierne rib is any rib, except a ridge rib, not springing from an abacus. Lierne ribs were introduced during the Decorated or fourteenth century style when elaborate systems of vaulting were used.

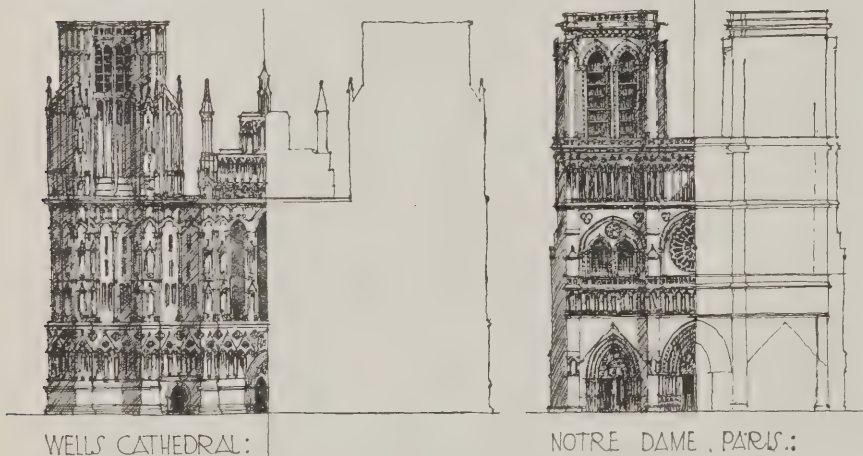
(c) A chantry or chapel is a separate part of a church appropriated for the use of private worship in honour of some particular saint, or built and adorned by the founder. There are several at Exeter Cathedral, one of which, Speke's Chantry, is illustrated.

(d) An oriel is a window in an upper storey overhanging the main wall face and carried on brackets or corbels.

(e) Poppy heads were introduced in the Perpendicular period, and formed terminals to the pew ends. The word is apparently derived from the French *poupée*, a bunch of flax on a staff, and not from the flower or plant.

6. Draw to  $\frac{1}{2}$ -in. scale a flint and stone porch of an English church giving plan, elevations, and section.

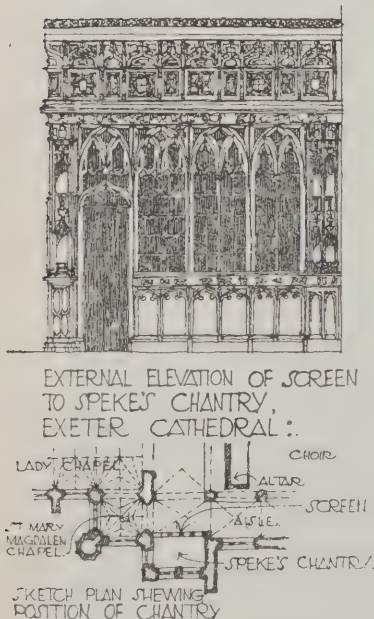
*Answer.*—The example illustrated in sketches is from Dennington Church, Suffolk.



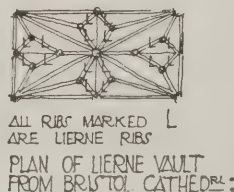
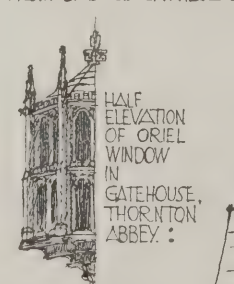
WELLS CATHEDRAL:

NOTRE DAME, PARIS:

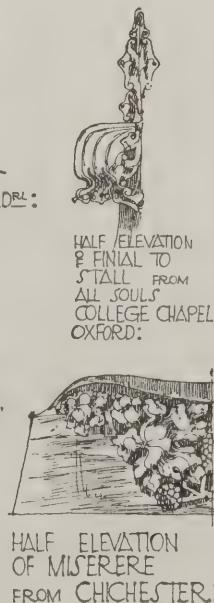
Question No. 4.



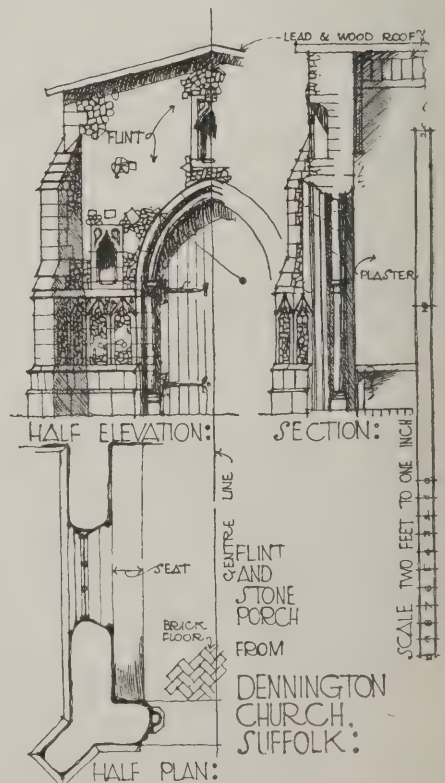
EXTERNAL ELEVATION OF SCREEN TO SPEKE'S CHANTRY, EXETER CATHEDRAL:

ALL RIBS MARKED L ARE LIERNE RIBS  
PLAN OF LIERNE VAULT FROM BRISTOL CATHEDRAL:

HALF ELEVATION OF ORIEL WINDOW IN GATEHOUSE, THORNTON ABBEY:



HALF ELEVATION OF MISERERE FROM CHICHESTER:



HALF ELEVATION:

SECTION:

CENTRE  
FLINT AND  
STONE PORCH  
FROM  
DENNINGTON  
CHURCH,  
SUFFOLK:

HALF PLAN:

Question No. 6.

Question No. 5.



## NEWS ITEMS.

*A Lucky Quarry.*

The substitution by the road authorities of granite for soft local stone has converted the parish quarry of Lakeland, Imbleton, in Cumberland, which had hitherto been regarded as of little or no value, into a property valued at £50,000.

*Change of Address.*

Messrs. the Andrews-Hawksley Patent Road and Engineering Co. have removed their offices from 50, Brunswick Street, Poplar, E., to 37, King William Street, London Bridge, E.C., to which address all communications should now be directed.

*Maidstone's Tithe Barn Saved.*

The Maidstone Town Council have been empowered by the Local Government Board to borrow £2,000, to be repaid in sixty years, to enable them to purchase the famous Tithe Barn, which a wealthy American had desired to acquire and transport to the United States.

*Hospital Ventilation.*

The extensions to the City Hospital, Coventry, are being supplied with Shorland's double-fronted patent Manchester stoves, with descending smoke flues, patent Manchester grates, and exhaust roof ventilators, by Messrs. E. H. Shorland and Brother, Ltd., of Failsworth, Manchester.

*Welsh Memorial to King Edward.*

Mr. D. W. Evans, general director of the King Edward Welsh National Memorial, purchased last week, at a sale held at Brecon, the picturesque estate and mansion known as Pontywal Hall for £15,600, and announced, amid cheers, that the mansion would be used as a sanatorium for the treatment of consumptive patients in Breconshire and Radnorshire.

*St. Alban's, Retford.*

A further stage in the completion of the Church of St. Alban's, Ordsall, Retford, has been marked by the extension of three bays of the nave at a cost of £2,000. The existing part of the church was designed by the late Mr. C. Hodgson Fowler, F.S.A., and the present work has been carried out by Messrs. E. Bowman and Sons, of Stamford, under the supervision of Mr. W. H. Wood, F.R.I.B.A., of Newcastle and Durham.

*The Old Town Hall, Manchester.*

In the forty-ninth annual report of the Manchester Society of Architects reference is made to the old Town Hall, Manchester, which, it will be remembered, had to make way for a new bank. The fund raised for the purpose of assisting the Manchester Corporation to re-erect the façade of the building in one of the public parks was so well supported by the public that the corporation felt justified in carrying out the proposed work, and consequently the façade has been re-erected in Heaton Park.

*Departmental Delays.*

At a meeting of Northampton Town Council, Councillor Heap asked when a commencement was likely to be made with the building of the secondary school for girls. It was unfair to the contractor and men out of employment that the work should be delayed. £16,000 or £17,000 worth of work had been standing for months. The way the thing was allowed to drag on was disgraceful. Alderman Hill said Councillor Heap was only ex-

pressing the feelings of the Education Committee, but it was beyond their power to proceed. Communications were passing between the Local Government Board and the Board of Education, who did not see eye to eye in the matter, and he was afraid from the most recent reports that at least another month would elapse before the work could proceed.

*City Planning Classification.*

A preliminary outline of a city planning classification, by James Sturgis Pray and Theodora Kimball, respectively chairman and librarian of the School of Landscape Architecture of Harvard University, has been issued from the Harvard University Press, Cambridge, Mass., price ten cents. It gives the main headings of a city-planning classification scheme, with some indication of the material to be included in the fuller scheme. By these means it is hoped to "secure the benefit of suggestion from those actively interested in city planning."

*Building at Bournemouth.*

A report on the building industry at Bournemouth, submitted to the Town Council, shows that the number of buildings for which plans had been deposited during the year ended March 31st last was 675, as compared with 769 in the previous year. The number of new houses completed during the year was 360, as compared with 508 in the preceding year. The approximate value of new buildings approved during the year (taken from Board of Trade returns) was £273,798, as against £383,268 in the previous year. This is the first occasion for many years that the number of new buildings has not shown a considerable increase.

*Structural Alterations Profitably Managed.*

A high-class furniture house in the West of England (says a writer in the "Magazine of Commerce"), which found itself compelled to carry out extensive structural changes to a branch, found a means of retaining all their regular customers during the repairs, in addition to attracting new patronage. Before the alterations were commenced an entirely new shop front was made up for temporary service, in the form of an old Tudor cottage. This was got into position without interfering with the business in any way. Behind this attractive exterior the alterations were carried out, while the front itself attracted and brought many new customers.

*Hampstead Garden Suburb Church.*

Last week the Bishop of London dedicated the tower and spire of St. Jude's-on-the-Hill, Hampstead Garden Suburb. Earl Grey, who was accompanied by Mr. E. L. Lutyens, the architect of the church, and Mr. Alfred Lyttelton, K.C., M.P., first unveiled a mural tablet affixed to one of the main piers supporting the tower, and read the inscription, as follows: "This tower, with its spire, was presented by many friends of Henrietta, wife of Samuel Barnett, Sub-Dean of Westminster, on her sixtieth birthday, May 11th, 1911, to symbolise the aspirations of the founders of the Hampstead Garden Suburb, and was dedicated by Arthur Foley, Lord Bishop of London, May 8th, 1913." The Bishop having paid a tribute to the labours of Mrs. Barnett in connection with the formation of the suburb, said he had been accompanied over the estate by the Whiteley Trustees, who were going to build a suburb something like it. Up to the present the church has cost £21,000.

## PROJECTED NEW WORKS.

*Extension of St. John's Church, Middlesbrough.*

Plans prepared by Mr. Cecil Hare for extensions to St. John's Church, Middlesbrough, have been adopted.

*A Classical Band-stand.*

The new band-stand in the municipal gardens at Southport is described as being "of a strictly classical design, to harmonise with the classical façades of the town hall and library."

*Jewish Hospital, London.*

A proposed Jewish hospital for London is estimated to cost £22,000, and the plans, prepared by Mr. Hall, give accommodation for fifty-two beds. It is to be called the King Edward Memorial Jewish Hospital.

*Rebuilding of Worthing Pier.*

Conferences have been proceeding between the Directors of the Worthing Pier and the Engineer (Mr. Mansergh) with reference to the reconstruction of the pier.

*The Science Museum, South Kensington.*

The demolition of the portion of the Science Museum, South Kensington, which adjoins Exhibition Road, is about to be begun in preparation for the erection of the new museum buildings.

*Housing, Blackrock.*

Blackrock Urban Council are considering a housing scheme by which eighty artisans' dwellings are to be provided at a cost of £22,500. The scheme includes the erection of baths and washhouses, and the provision of a playground for the children.

*Baths, Liverpool.*

Liverpool Corporation have adopted, by 65 votes against 25, a scheme for the construction, on the George's Dock site, at the rear of the Dock Board offices, of swimming baths which are estimated to cost £70,000.

*Housing, Falmouth.*

Falmouth Town Council have adopted a scheme for the erection of forty-four houses. The tender of Messrs. Strongman and Son, at £170 a house, has been accepted; and application is to be made to the Local Government Board for leave to borrow £800 for the purchase of the land, £7,560 for the buildings, and £568 for the sewers and street works.

*Cold Storage Premises, Bristol.*

The tender of Messrs. Hayward and Wooster, Bath, has been provisionally accepted for the erection of the premises for the Avon Cold Storage and Ice Company, Ltd., Queen Street, St. Philip's Bridge, Bristol. The building will be entirely of reinforced concrete on the Indented Bar principle, and the cold storage department will consist of three large floors of a capacity of 150,000 cubic feet.

*Sea-Front Improvements at Bournemouth.*

A Local Government Board enquiry has been held at Bournemouth with respect to an application for powers to borrow £8,000 for the construction of a bridge and drive at Boscombe. It was recalled by the Town Clerk, Mr. Herbert Ashling, that the corporation had constructed an overcliff drive and an undercliff drive on the sea front, and the present application was for power to link up two drives at Boscombe Chine. Some opposition was offered to the scheme, but it was pointed out that the corporation were unanimously in favour.



## SOCIETIES AND INSTITUTIONS.

ARCHITECTS' AND SURVEYORS'  
APPROVED SOCIETY.

In response to many requests from members of the Approved Society for other benefits than those provided by the National Insurance Act, the Committee have decided, subject to sufficient numbers joining, to form a voluntary section for the provision of additional sickness and disablement benefits, pensions, and death benefits.

Great consideration has been given to the whole question, and it is believed that the two tables of benefits, which have been drawn up under the best actuarial advice, will generally meet all requirements.

The experience gained in the working of the Approved Society, short though it is, has been sufficient to show that there are undoubtedly great advantages to be gained by joining a society composed entirely of professional men. The membership of the voluntary section will be limited to the architectural and surveying professions, as in the State section.

The voluntary section will not be carried on for profit; it will be managed solely in the interests of members by the same committee as the Approved Society, which is composed of names well known in the professions; there will be no shareholders or representatives to draw commissions or fees out of the funds, which will be the absolute property of members.

The secretary will be pleased to give any further information or to advise any members as to the most suitable insurance for them to take up on application.

It should be noted that the voluntary section will be open to all members of the professions, whether State-insured or not, with no question of income-limit.

Under Table I., up to age thirty, a member can secure 10s. per week in illness, disablement benefit of 5s. per week, a pension of 5s. per week, £25 at death, and £12 10s. at death of his wife, for the small sum of 1s. per week. Every member is bound therefore to receive some benefit. Under Table II. the contribution is larger, and the pension benefit is 10s. instead of 5s. Either table should be regarded as a unit, and can be doubled or trebled in return for double or treble contributions.

A medical certificate of good health will be required at entry.

The Society has a Benevolent Fund which is supplemented by many members of the professions. This fund will be available to all members of the voluntary and State sections of the society and to non-members who contribute a small quarterly payment to the Benevolent Fund. It may be drawn upon at the discretion of the Committee to meet cases of distress arising from continual unemployment, or to assist the widows and families of members. Mr. Reginald Blomfield, A.R.A., F.R.I.B.A., is the president, and Mr. F. R. Yerbury, 18, Tufton Street, Westminster, the secretary.

LEICESTER AND LEICESTERSHIRE  
SOCIETY OF ARCHITECTS.*Annual General Meeting and Dinner.*

The Leicester and Leicestershire Society of Architects held their fortieth annual general meeting at the Bell Hotel, Leicester, on May 6th, when Mr. A. H. Hind, F.R.I.B.A., was re-elected president for the ensuing year, and the following gentlemen were elected as the council: Mr. W. M. Cowdell, F.R.I.B.A. (past presi-

dent), Messrs. W. A. Catlow, F.R.I.B.A., W. E. Keites, S. P. Pick, F.R.I.B.A., H. H. Thomson, F.R.I.B.A., F. Morley, A.R.I.B.A., and N. B. Robertson, A.R.I.B.A. Mr. F. B. Cooper, A.R.I.B.A., was elected hon. treasurer, and Mr. Clement Stretton, A.R.I.B.A., was re-elected hon. secretary for the coming year.

The meeting was followed by a dinner, at which the Leicester and District Building Trades Employers' Association were represented by Mr. F. H. Rowlett, president; Mr. T. S. Hurley, vice-president; and Mr. S. A. Dove, secretary.

LONDON MASTER BUILDERS'  
ASSOCIATION.

The ordinary meeting of the Council was held on Thursday last, May 15th, at Koh-i-Noor House, Kingsway, W.C., the President, Mr. Walter Lawrence, jun., being in the chair. There was a very large attendance of members. Reports of special committees were received and approved. The proceedings of the conference held on May 6th with representatives of most of the large London firms directly employing plasterers were reported. These firms unanimously approved the action taken by the Association in its negotiations with the National Association of Operative Plasterers and pledged themselves to support its efforts to secure fair and reasonable rules. Correspondence relating to trade matters was considered. A number of new members were elected, and nominations for membership were received and accepted.

## COMPETITIONS.

*New Government Buildings, Edinburgh.*

The conditions of the competition for the new Government buildings in Edinburgh will be published shortly. Competitors will be allowed three months in which to prepare designs. While the successful plans will take in the entire area, which is extensive, present intentions only contemplate the erection of one block of buildings at the outset, covering roughly, a third of the building site. Sir Robert Lorimer will be the assessor. He has been in consultation with Mr. Oldrieve, of H.M. Board of Works.

*Municipal Offices, Barnet.*

Thirty-nine sets of plans were considered, and from these Nos. 2, 6, 11, 22, 25, 27, 29, and 36 received further consideration, and a sub-committee has been appointed to examine and report upon Nos. 2, 22, 25, and 27.

*Ipswich Garden Suburb.*

In this competition, in which premiums of fifty, thirty, and twenty guineas were offered for competitive designs for the layout of about 26 acres of land as a working-class suburb on the lines of a modified garden city, the awards are announced as follows: 1, Messrs. C. M. Crickmer and Charles Whitby, London, W.C.; 2, Mr. S. Alexander Wilmot, Bournville; 3, Mr. M. S. Hack, London, W.C.; extra premium of ten guineas, Messrs. Hallas and Turner, Sheffield.

## LIST OF COMPETITIONS OPEN.

MAY 31.—LAY-OUT OF PARK, BACUP.—The Corporation invite designs for laying out the Moorlands and Stubble Easements as a public park. Premiums £40, £20, and four of £10. Summary of conditions in our issue for April 16th.

MAY 31.—"IDEAL HOMES" EXHIBITION.—COTTAGES AND BUNGALOWS.—Designs

are invited for (1) A workman's detached cottage; (2) a pair of workmen's semi-detached cottages; and (3) a bungalow for four single persons. The prize of £50 will be given in each case. Assessor, Mr. Leonard Stokes, F.R.I.B.A. Summary of conditions in our issue for February 12th.

JUNE 2.—STREET IMPROVEMENT SCHEME, BLACKBURN.—The Corporation invite designs for street improvement scheme for Blackburn. Premiums £100, £50, and £25. Assessor, Professor Adshead, F.R.I.B.A. Conditions (of which a summary was given in our issue for April 23rd) from Town Clerk, Municipal Offices, Blackburn.

JUNE 7.—HOSTEL FOR MALE STUDENTS, EXETER.—Mr. Edwin Cooper, F.R.I.B.A., is assessor. Particulars (one guinea, returnable), H. Lloyd Parry, Town Clerk, Exeter. Summary in our issue for April 2nd, and plan of site in the issue for April 9th.

JUNE 14.—BATHS, NEWCASTLE.—The Corporation invite designs for baths at Benwell, Walker, and Heaton. Assessor, Mr. Herbert W. Wills, F.R.I.B.A. Conditions, with site plans, obtainable (postal order 1s.) from A. W. Oliver, Town Hall, Newcastle-on-Tyne. Summary in our issue for April 23rd.

JUNE 14.—MUNICIPAL BUILDINGS, DEVONPORT.—The Corporation invite designs for municipal buildings and a guild-hall. Premiums £350, £150, and £100. Assessor, Mr. Ernest Newton, A.R.A., F.R.I.B.A. Conditions (£2 2s., returnable) from R. J. Fittall, Town Clerk, Municipal Offices, Devonport, to whom designs are to be sent. Summary and plan of site in our issue for March 12th.

JUNE 19.—LAYING OUT ESTATE, NEWCASTLE.—Corporation invite designs for laying out a portion of their Walker Estate. Premiums £50, £30, £20. Particulars (one guinea, returnable), A. W. Oliver, Town Clerk, Newcastle-on-Tyne. Summary in our issue for April 16th.

JUNE 24.—SANATORIUM, FAZAKERLEY.—Corporation of Liverpool invite designs for a sanatorium to be erected at Fazakerley, and to contain 250 beds. Premiums 150, 100, and 50 guineas. Particulars (two guineas, returnable), Edward R. Pickmere, Town Clerk, Municipal Offices, Liverpool.

SEPTEMBER 1.—TOWN PLANNING, HIGH WYCOMBE.—Schemes for the town planning of the borough are invited by the Borough Council. Premiums, £25, £10, and £5. Particulars, T. J. Rushbrooke, Borough Surveyor, High Wycombe.

## OBITUARY.

*M. Gaston Hochard.*

The death of the French painter, M. Gaston Hochard, at the age of fifty, is announced from Paris. M. Hochard, who was a member of La Société Nationale des Beaux-Arts, was a keen observer of life in provincial France, and in his pictures of street scenes he always sought to emphasise the comic element in life.

*Mr. T. E. L. James, F.R.I.B.A., M.S.A.*

Mr. T. E. L. James, who died at Balham on May 12, at the age of fifty-five, was the architect of several schools—notably the Rydal Mount School, Colwyn Bay; Queenswood School, Clapham Park; and Manor House School, Clapham Common. He had also done much domestic and business work and some ecclesiastical work. He was elected F.R.I.B.A. in 1893.



# CONCRETE AND STEEL SECTION.

(MONTHLY.)

## APPLICATIONS OF STRUCTURAL STEEL.

In the course of a recent lecture on steel construction in engineering structures, Mr. A. T. Walmisley, the well-known engineer, said that fifty years ago cast iron was in general employment for struts both in timber trusses and in iron framework. An early example was the Crystal Palace, where the trellis girders as well as the columns and staircases and towers were all made in cast iron.

### *Some Typical Bridges.*

In the construction of the Holborn Viaduct Bridge the same material was employed for the floor plates and connecting arches and framework. The first iron bridge constructed in 1779 across the River Severn was cast and erected by the Coalbrookdale Company, the span of 100 ft. 6 in. being nearly semicircular. Southwark Bridge over the Thames consisted of three segmental arches of cast iron, the centre span being 240 ft. with a rise of 24 ft. This bridge was now to be removed and rebuilt, not on account of any imperfection of construction, but because the gradients of approaches required to be less steep for present day requirements. Cast iron had no definite elastic limit, and an engineer usually included a clause in his specification that all cast iron must be capable of carrying a weight of 25 cwt. acting transversely in the centre of a bar 1 in. deep, 1 in. wide, and 3 ft. 6 in. long, and that when supported upon edges 36 in. apart the permanent deflection should be 5/16 in.

### *Wrought-iron Arches.*

Wrought iron was adopted for the arches of Blackfriars Bridge with a centre span of 186 ft. 5 in. and a rise of 15 ft. 1 1/4 in., and mild steel was adopted for the recent widening of this structure. The wrought iron used for St. Pancras Station roof was specified to be Yorkshire or Derbyshire iron. In the case of Westminster Bridge great criticism was aroused by the combination of wrought and cast iron in the design. Wrought iron girder centres were placed intermediate between cast iron cantilevers adopted under the roadway.

In the case of the Royal Agricultural Hall, Islington, built in 1862, the principals in the span of the central roof, 125 ft., with a rise of 51 ft. above the springing level, were 24 ft. apart, and were connected by longitudinal trussed purlins. The main principals rested upon a double row of braced columns, placed at 10 ft. centres, forming a pier of sufficient transverse width to resist the thrust which was conveyed through the gallery girders to the outer walls.

### *Steel Construction.*

About the year 1880 steel began to be used instead of wrought iron for ordinary engineering construction, and this change in the material employed enabled the engineer to increase the safe stress per square inch in a structure and to reduce in a proportional degree the amount of material needed. The Forth Bridge was built of mild steel made by the Siemens process, and in its construction the cantilever principle was applied in an unparalleled manner. For struts or stan-

chions in which the ratio of length to radius of gyration was greater than 30 and less than 120, it appeared from stress diagrams that it was the limiting stress upon the outside fibre of a section at the yield point, and the percentage at elongation, which played a predominating part in determining the capability to resist distortion, and it was doubtless a knowledge of these facts that led the late Sir Benjamin Baker to specify a steel with a high elastic limit for the compression members of the Forth Bridge.

### *Stanchions and Struts.*

A type of stanchion which imparted great stiffness to the building was that employed for the support of the sub-ground floor of the new building of the Institution of Civil Engineers. This consisted of three joists riveted together. Such a column could be easily increased or lightened in section, and the concentrated load could be distributed at its base by a grillage of rolled joists. The results of tests on struts showed great variation, and no formula, empirical or otherwise, could do more than predict roughly the load at which crippling by displacement or bulging would take place. At the Central Markets Extension, Smithfield, the load upon one of the foundation stanchions was equal to 675 tons.

### *Solid Columns.*

Solid round columns had been used in the construction of many buildings because they occupied less space than a framed structure. The collars and bases were now invariably made also of steel, shrunk on the end of solid shaft, and the connexion was subsequently bolted to these collars. The "Daily Mail" building in London afforded one of the most remarkable examples of solid steel columns, because there hammered steel rams 11 in. in diameter were used. The largest solid columns yet used were in Harrod's Stores structure. These were 13 in. in diameter. In this building the ground floor was loaded up 5 cwt. per sq. ft., the five floors above 2 cwt. per sq. ft., and the roof was calculated at 1 1/2 cwt. per sq. ft. Owing to the small space occupied these columns met one of the requirements of modern building construction, and no difficulty was experienced with the large and varied details of caps that had been adopted.

### *Reinforced Concrete.*

Respecting reinforced concrete, Mr. Walmisley said that by a proper addition of steel to concrete the two materials could be made to act together. Too much metal split up the concrete and destroyed the homogeneity of the slab. If the steel in reinforced concrete was stressed to its limit the concrete might be over-stressed. If the concrete was stressed to its limit the steel might be under-stressed and the amount of reinforcement proved to be excessive.

Vertical reinforcement was, of course, of importance in girders, and consequently compressive bars were added in some beams with the object of stressing both the concrete and the steel of their limits. With the use of separate kinked wires care must be taken so to connect them that they did not tend to straighten out and in so doing split the concrete. This tendency was obviated in the use of expanded metal sheets.

## THE SURFACE TREATMENT OF CONCRETE.\*

In order to obtain general information concerning the best methods employed for the treatment of the surface of concrete, a circular letter was issued in June, 1909, to all the members of the institute. Forty-six replies were received, and they were summarised for consideration by the Reinforced Concrete Practice Standing Committee.

As a result of these investigations the committee have drawn the following conclusions, namely, that the most usual way of obtaining a smooth surface on concrete or reinforced concrete works consists in careful preparation of the moulds and the use of a fairly liquid mixture of concrete of such consistency as will allow of the smaller particles of the aggregate and the cement being brought towards the outer surface. Care must be taken, however, that the moulds be sufficiently watertight to prevent the formation of honeycombs at any of the joints.

A good surface may be obtained by working up and down against the shuttering with a spade perforated with holes, which treatment will bring the smaller materials towards the outer surface of the work.

Another method consists in applying to the inside of the moulds a mixture of sand and cement, and then to form the core with concrete of an ordinary mixture.

The usual method of treating the surface of concrete which has hardened consists in hacking the face of the work and plastering it with a mixture of sand and cement in the proportion of 1 to 3. The surface of this plastering must be left sufficiently rough to form a key for a finishing coat of sand and cement in the proportion of 1 to 2. To obtain a perfectly level surface this coat can be finished with a steel trowel or wood float. A similar process with Keene's cement gives a very good outer coating.

It is advisable to avoid the rendering or plastering of any surface of concrete or reinforced concrete which is to be exposed to weather, because in such cases the thin coating or rendering applied to the hard surface of the concrete is likely to peel off or to craze (cf. application of sand and cement to the inside of moulds, referred to above).

If a smooth surface is required, it is better to obtain it by means of carefully prepared centering.

A good method of improving the appearance of the surface of concrete which is to be left from the moulds is to wash it over, after making good any deficiency, with grout composed of cement and water. This operation is usually done by means of a brush, and is known as "brush rendering."

Another method of surface treatment is to expose the aggregate by rubbing the surface vigorously with a wire brush. This process may be hastened by the application of diluted hydrochloric acid, which has the effect of removing the cement on the surface. If acid be used, the surface should be washed after treatment.

\* Extracts from a report submitted at the thirty-sixth ordinary general meeting of the Concrete Institute on April 10th.



When dealing with the surface of floors, it is preferable to apply any rendering which may be required immediately after the concreting operation has been terminated, and before the concrete has set hard.

For the colouring of the concrete the following process has been advised by some of the members:

For colouring concrete or rendering, care is necessary in selecting colours. Venetian red and Indian red should never be used, because they are heavily loaded with calcium sulphate, which often causes the cement to disintegrate. Red hæmatite, some red ochres, and many other of the iron ores, particularly if burnt, are safe and suitable. Red hæmatite has a very powerful effect, very little being needed. Yellow ochres are suitable and safe, and have considerable colouring power. Burnt umber is safe, and gives a nice warm colour. A satisfactory colour has not been found in blue or green. Copper arsenide gives a fair green, but it is not desirable. Ultramarine is unsafe. Black oxide of manganese is probably best, but it is not possible to get a clear black. Ground hard-burnt coke may be used, but it is not so good. Ground coal or lamp black are quite inadmissible, except in the case of some of the anthracite coals. A clean white is not obtainable, except by using a white cement. A near approach to white may be obtained by the use of slaked lime; the lime carbonates on the surface and forms a permanent and almost white colour. A cream colour which looks very well may be obtained by the use of slaked lime with a little yellow ochre. Chalk and whiting do not give very satisfactory results. In all cases but that in which slaked lime is used, the colour in sufficient quantity to give the desired tint should be mixed (preferably ground) with the dry cement. Hand mixing is not satisfactory. Slaked white lime should be freshly made, but perfectly slaked, and should be mixed with the cement and aggregate at the time of using. By blending the colours named, all usual building material shades of red, brown, buff, and grey may be obtained, and they are all permanent and safe.

Finally, it is possible, of course, to obtain very pleasing effects by the use of rough-casting, and also by the introduction of flints or other stones placed by hand in the moulds and surrounded by cement.



REINFORCED CONCRETE FACTORY, BEDFORD ROAD, CLAPHAM, S.W.  
ROBERT CURTIS, ARCHITECT.

#### A REINFORCED CONCRETE FACTORY.

The accompanying illustrations show a cardboard-box factory recently erected for Mr. E. A. Kent at Bedford Road, Clapham, S.W. The building is of reinforced concrete skeleton construction, the walls being reinforced with "Hy-Rib," covered to a total thickness of 4 in. with a mixture of cement and sand in the proportion of 3 to 1. This mixture was applied with the "Cement Gun," an apparatus recently introduced into this country from America, where it has been used with considerable success. The method of application is as follows: The sand and cement, in their dry condition, are forced through a hose in intermittent charges by means of compressed air. At the nozzle they are hydrated from a separate hose and applied to the work with a velocity corresponding to a pressure head of 35 lb. The mixing

operation is entirely performed during the transit of the material from the nozzle to the surface of the work. The hose is operated by a single attendant, who stands a short distance away from the object under treatment. A great advantage of this process is that the initial set, or chemical combination which gives the final strength to the mass, begins not on a mixing board, as is usually the case, but on the actual work itself. The bare concrete of the skeleton was also given a finishing spray with the apparatus, thus imparting to the building a pleasant rough-cast appearance. This was the first instance of the use of the "Cement Gun" in London, and it is doubtful whether it has been employed anywhere else in this country.

The ground floor, which is supported on columns independently of the ground, was designed to carry a superimposed load of 3 cwt. per sq. ft., and the first and second floors and the roof a superimposed load of 1½ cwt. per sq. ft. It is probable that at some future date another roof will be added, when the present roof will be converted into a floor. In order to facilitate this change the roof has been constructed as a level floor, the falls being made in coke breeze with an asphalt surface, which may easily be removed. All the other floors are finished with granolithic. The gutter has been built in with the roof slab, the two forming in combination a rather effective, and certainly an economical, cornice, as may be judged from the photograph of the finished exterior. On the roof there is a small pent house, accommodating the lift gear.

The interior is divided up longitudinally, as shown in the accompanying plan and section, by a double row of columns, a direct gangway through the whole length of the building having been required. Except for these columns and the necessary lavatory accommodation, all the floors are wholly uninterrupted throughout their main area.

We reproduce on the next page a detail drawing of the sash windows, showing the ingenious method of fixing employed. These windows, which are of wrought-iron, were fixed to the side vertical angles before the walling was put in place, the walls



REINFORCED CONCRETE FACTORY, CLAPHAM, IN COURSE OF CONSTRUCTION.



subsequently being constructed around the angle framing. The floors are reinforced with ordinary round rods, "Hy-Rib" reinforcement, supplied by the Trussed Concrete Steel Co., Ltd., being used for all the walls. Kahn bars are used for reinforcement in the foundations.

The building was carried out entirely by Messrs. Wm. Cubitt and Co., in accordance with the various London County Council regulations with respect to fire prevention, etc. Special attention was given to the waterproofing of the building on account of the perishable nature of the materials which it had to contain. Architecturally the building is by no means unattractive, and its plain pilasters and unbroken wall surfaces are admirably expressive of reinforced concrete construction.

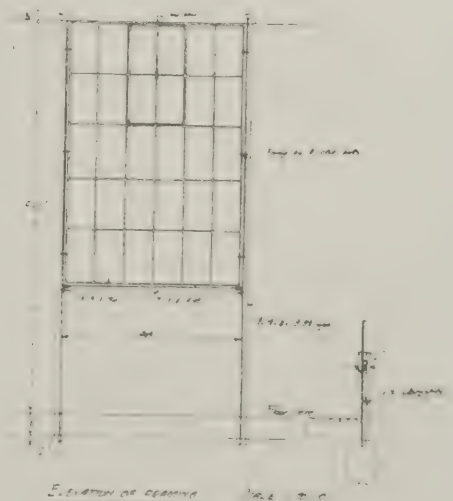
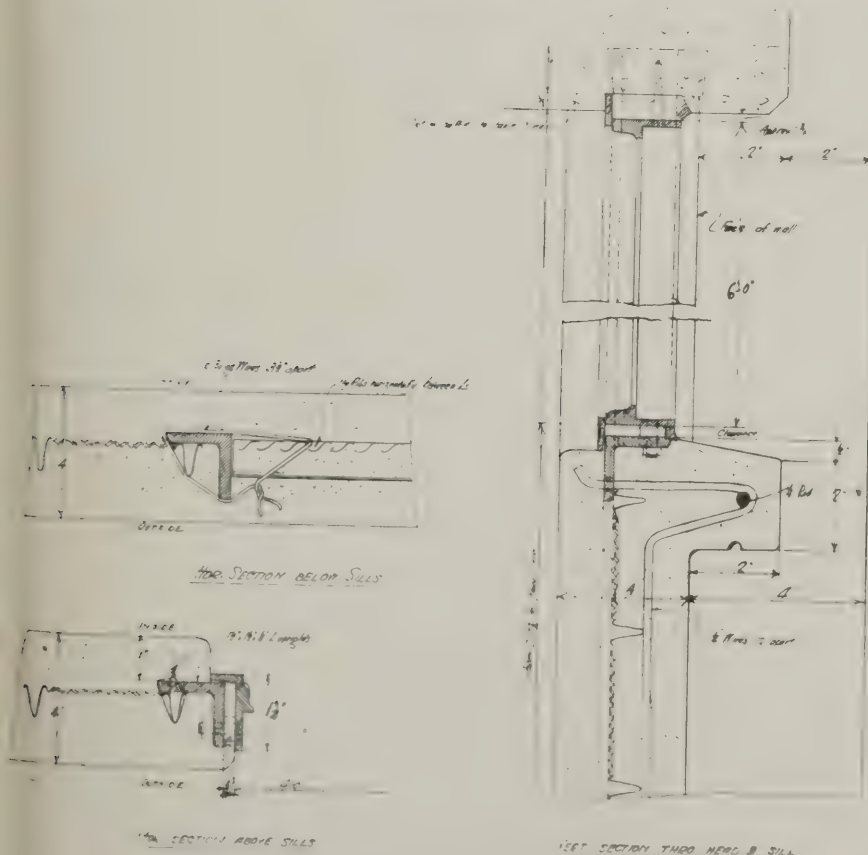
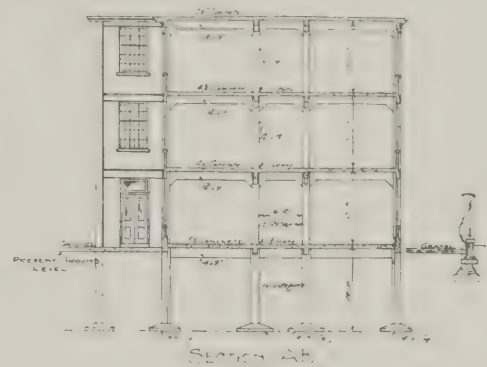
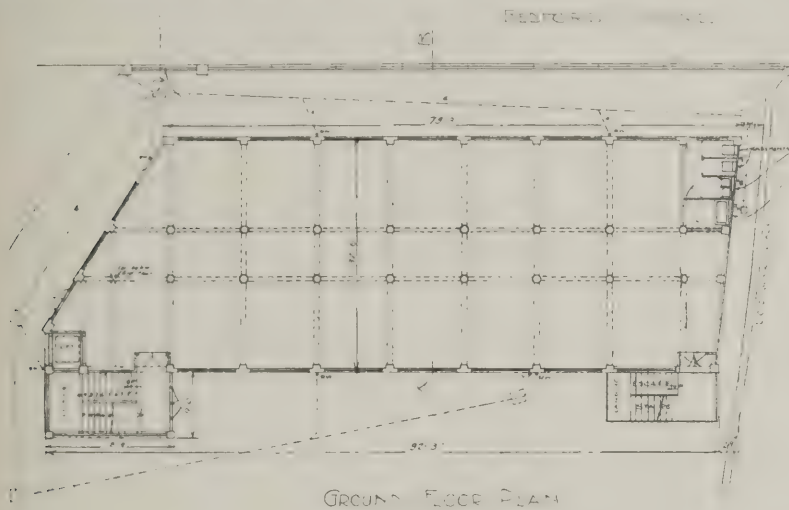
### THE CONCRETE INSTITUTE.

Volume IV., Part III. of the Concrete Institute "Transactions and Notes," records that on December 12th last the Insti-

tute had 906 members, 34 students, and 7 special subscribers. The visits recorded are as follows: The works of David Kirkaldy and Son, Southwark Street, S.E.; the London Works of Dorman, Long and Co., Ltd., Nine Elms Lane, S.W.; a warehouse in course of construction for Mr. J. Sainsbury, Blackfriars Bridge, S.E. (Mr. A. Sykes, F.R.I.B.A., architect); H.M. New Stationery Office, and Office of Works Stores, Blackfriars, S.E.; the Battersea Steel Works of Drew-Bear, Perks and Co., Ltd.; and works in progress on the Metropolitan Railway. In several instances, brief but useful particulars of the matters observed are given. Papers contained in the report are: "Calculations in the Design of a Thrust Buttress Masonry Dam," by Reginald Ryves; and "Fireproofing," by Richard L. Humphrey, of Philadelphia. Both these papers are illustrated—the latter copiously. In the discussion on Mr. Humphrey's paper, valuable points were brought out or emphasised by Mr. E. Fiander Etchells, Mr. W. G. Kirkaldy, and Mr. E. P. Wells.

The reading of the paper by Mr. Harold Cane, entitled "The Stability of Brick Chimneys" (extracts from which are unavoidably held over for a future issue), at the thirty-eighth ordinary general meeting of the Institute on May 8th, Mr. E. P. Wells, J.P., president, in the chair, was succeeded by a discussion, in which the following took part: Professor Henry Adams, Mr. E. Fiander Etchells, Mr. Morgan E. Yeatman, Mr. W. G. Perkins (District Surveyor for Holborn), Mr. James Petrie, Mr. W. Lucas, Mr. A. H. Bowen, Mr. Allen Graham, A.R.I.B.A., Mr. Frederick W. Kingston, Mr. E. W. F. Grimshaw, and Mr. E. P. Wells, J.P.

The annual general meeting of the Institute will take place to-morrow (Thursday), May 22nd, at 4.30 p.m., when a medal will be presented for the best paper read in the 1911-1912 session to Mr. Richard L. Humphrey, president of the American National Association of Cement Users, for his paper entitled "Fireproofing." An abstract of this paper was given in the Journal of November 22nd, 1911, page 551.



## ENQUIRIES ANSWERED.

### Reinforced-Concrete Formulæ.

J. O. (Cheltenham) writes: "The following question was set at a recent examination: 'An armoured concrete beam is rectangular in cross section, 12 ins. wide and 25 ins. deep. The reinforcement consists of four round steel bars each  $1\frac{1}{2}$  ins. diameter with their centre lines  $2\frac{1}{2}$  ins. from the bottom face of the beam. If the modulus of elasticity of the concrete is one-tenth that of the steel, find—(a) the position of the neutral axis; (b) the moment of resistance of the beam. The maximum intensity of the compression stress in the concrete is not to exceed 600 lbs. per square inch, and you may make all the usual assumptions.' Upon this problem the examiners make the following report: 'In dealing with such problems as this, on armoured concrete beams, candidates should not attempt to remember long and complicated formulæ. If they do, they almost invariably get mixed up. It is perfectly easy to determine in a few minutes all the formulæ required from first principles, when a candidate has a sound knowledge of the distribution of stresses in the cross section of a beam, and of the usual hypotheses which are made to simplify the calculations.' I should be glad to know the source of such simplified formulæ as suggested by the examiners in their report. After perusing such works as Adams, Waldram, Rings, and Andrews on the subject, I have failed to find any such easy method. If it exists, it would be a good thing for hundreds of students and readers of your journal to know."

—I am not aware of any such method as is suggested by the examiner. It is certainly possible to *approximate* the essential properties of a beam section of ordinary proportions; but such approximations are quite incorrect when applied to such an extraordinary section as that stated; and still more so when the vital property of  $\frac{E_c}{E_s} = M$  is altered

from 15 to 10. I should be very strongly inclined to doubt the practicability of deducing reinforced concrete formulæ from memory. They all depend upon the position of the neutral axis, and the formula which fixes this

$$(n_1 = \sqrt{m r^2 + 2mr} - mr$$

is quite as easy to remember as its deduction. On the particulars given this works out to .506, a somewhat unusual value.

P. J. WALDRAM.

### Strength of Reinforced Floor.

H. C. writes: "A room, 20 ft. by 12 ft., is constructed with a reinforced concrete floor *in-situ*, 7 ins. thick, consisting of Portland cement and ballast not greater than  $1\frac{1}{2}$  ins., in proportion 1 to 5, the whole well rammed, and having  $\frac{3}{8}$ -in. diameter steel reinforcing rods placed diagonally or diamond pattern at 24 ins. centres; the rods being at bottom level of floor in centre and at top of same on wall, with bent ends. The room has been in occupation for ordinary purposes during the last five years, and it is now proposed to use the same for storage. To what extent approximately could the floor be loaded with an evenly distributed load, for storage purposes, before the same might be expected to show signs of fracture?"

—The amount of reinforcement is so small and the reinforcing bars are so widely spaced, that their actual value is doubtful. They would probably act as the same amount of parallel bars. The effect of the end bearings would be almost negligible. Assuming that the angle of the diamond

spacing is 45 degrees, the bars would average 12 ins.  $\times 1.414 = 17$  ins. apart, measured at right angles to the 12 ft. span. The sectional area afforded by  $\frac{3}{8}$ -in. round bars 17 ins. apart per foot in width of slab is 3.341 sq. inches. Assuming  $\frac{1}{2}$ -in. cover, the ratio of  $\frac{A_t}{b d} = r$  would be

$$\frac{.3341}{12 \times 6.182} = .0045, \text{ for which value } n_1 = .309, \text{ and } a_1 = .897. \text{ This being below the economic ratio, the stress on the steel is the determining factor or greatest permissible bending moment} = Rt = At \times a \times b = .3341 \times 6.188 \times .897 \times 16,000 = 29,610 \text{ in. lbs.}$$

The bearings not being described as fixed, the bending moment would be  $\frac{Wl}{8} = 29,610 \text{ in. lbs.}, W = \frac{29610 \times 8}{150} = 1580 \text{ lbs. on a strip } 12 \text{ ft.} \times 12 \text{ ins., or } 132 \text{ lbs. per foot super. Of this, } 150 \times \frac{1}{12} \text{ or } 88 \text{ lbs., is mortgaged to the task of carrying the dead weight of the floor itself, leaving } 44 \text{ lbs. per foot super. of net safe carrying capacity.}$

It would be obviously advisable to strengthen the floor by the insertion of joists under before it is used for any ordinary storage purposes, especially of articles easily handled, which can be piled high. The elastic limit of the steel would probably be reached, and cracks would start when the total load amounted to about 264 lbs., or say 176 lbs. super. load per foot super.

P. J. WALDRAM.

### Calculation for Span of Rolled Joist.

LEEDS STUDENT writes: "In a recent examination the following question was set: 'Calculate over what span a 14 in. by 6 in. steel joist could safely carry a distributed load of 18 cwt. per lineal foot. The web to be  $\frac{1}{2}$  in. thick and the flanges  $\frac{3}{4}$  in. thick.' Please give the method of calculation."

—First find the section modulus of the given section as shown at p. 92 of "The Engineers' Handbook" (Cassell, 7s. 6d. net), viz.,  $Z = \frac{BD^3 - bd^3}{6D} =$

$$\frac{6 \times 14^3 - 5.5 \times 12.5^3}{6 \times 14} = 68.117 \text{ inch units, or } \frac{68.117}{12} = 5.676 \text{ foot units. Then}$$

$$\text{Bending Moment} = \text{Moment of Resistance, or } \frac{wl^2}{8} = ZC, \text{ whence } l = \frac{\sqrt{8ZC}}{w} =$$

$$\frac{\sqrt{8 \times 5.676 \times 7.5}}{18 \div 20} = 19.4 \text{ ft. span. It is}$$

necessary to see that the different quantities are kept in the same terms,  $w$  and  $C$  might have been in lbs. and  $l$  and  $Z$  in inches, but the units taken above make fewer figures.

HENRY ADAMS.

### REINFORCED CONCRETE BRIDGES.

For examples of large reinforced concrete bridges we have as yet to go to the Continent or America, and the girder and arched bridges dealt with by Mr. Frederick Rings in his recently issued book on the subject are of necessity mostly foreign. In fact, the only British bridges he describes are the girder bridge at Seaham Harbour and the arched bridges that are respectively at Norwich, York, and Ponteland. In an introductory chapter the author discusses the disadvantages and advantages of reinforced concrete for bridge construction, the architectural

treatment of the material, its weather-proofing and waterproofing, and composition; while the regulations of the London County Council, and some practical hints on superintendence and other matters, are added. The second chapter deals with bending moments, stresses, and strains; the third with loads and external stresses; while Chapters IV. to VI. deal respectively with culverts, coverings, tunnels, etc.; beam bridges; and the calculation of girder bridges, with worked examples. The seventh chapter describes and illustrates examples of girder bridges. Two further chapters treat respectively of the design of arched bridges and abutments and the theory of the arch, these themes being introductory to the illustrated descriptions of examples of arched bridges contained in Chapter X. Formulæ, notes, schedules, and other useful information occupy the tenth and last chapter of a book that fills a distinct void in the literature of reinforced concrete. The illustrations are particularly valuable, comprising not merely photographic views of the finished bridges, but, in most instances, sections, details, and working drawings, some of the last-named necessitating the use of folding plates.

"Reinforced Concrete Bridges." By Frederick Rings, M.S.A., M.C.I., etc. Pages xii. + 184, 11 $\frac{1}{2}$  in. by 8 in., price 21s. net. London: Constable & Co. Ltd., 10, Orange Street, Leicester Square, W.C.

## LEGAL.

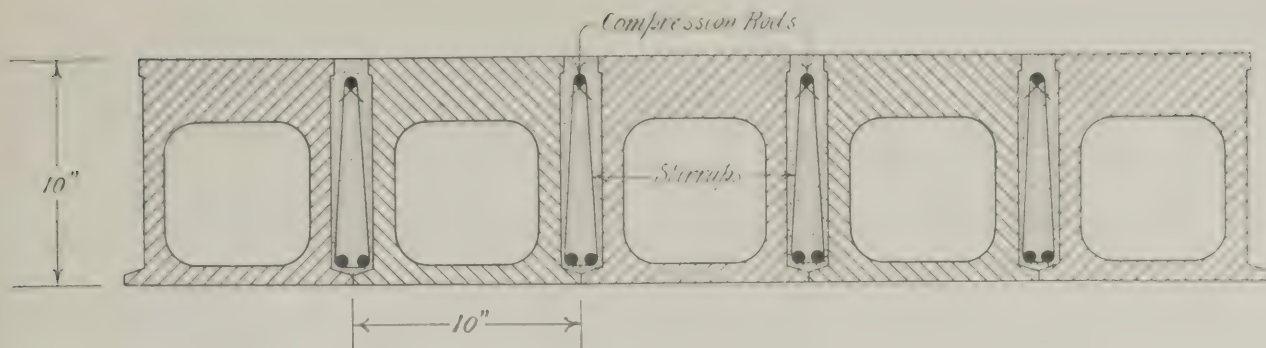
### Action against a Trade Union Official.

In the Lancaster County Court, last week, before Judge Sturges and a jury, Christopher Stephenson, a painter and decorator, sued Frederick Wilkinson, secretary of the local Operative Painters' Union, to recover £7 10s. damages, being three weeks' wages, for procuring a breach of his contract of service with Messrs. Warburton and Trotter, shop fitters, of Leicester.—It appeared that the plaintiff was engaged on some shop alterations at Lancaster, and was earning 50s. per week, when the defendant Wilkinson went to the job and drew the foreman's attention to the fact that the plaintiff was a non-unionist, and it was alleged that the foreman was thus induced to dismiss the plaintiff. The plaintiff wanted to join the union, but the defendant told him he was stopped.—Stephenson, the plaintiff, in his evidence, said there was no dispute, no dissatisfaction had been expressed, and no trouble would have arisen because he was a non-unionist but for the action of the defendant. He had previously offered to join the union.—In cross-examination the plaintiff said he acted sometimes as master and if paid by the hour he would consider an hour's notice sufficient. In this case he got more.—It was stated that the defendant acted on a minute of his society.—The Judge ruled that, according to the Taff Vale and other decisions, there was no case to go to the jury. Even if a man acted maliciously in procuring the dismissal of a non-unionist, if legal notice of dismissal had been given no action would lie.—Judgment was entered for the defendant.

### The Mappin Terraces at the Zoo.

The reinforced concrete work of the new Mappin terraces at the Zoo is now in course of construction by Messrs. D. G. Somerville and Co., Ltd., whose designs and tenders were recently accepted. Every endeavour is being made to have the terraces completed by the end of July, when it is expected that they will be opened by the King.





SECTION OF "UNIVERSAL" HOLLOW BRICK FLOOR.

## IN PARLIAMENT.

(By Our Press Gallery Representative.)

### *The Admiralty Arch.*

In the House of Commons recently Mr. Wedgwood Benn, replying to Mr. Goldsmith, stated that a committee had been appointed to consider the improvement of the approach to the Admiralty Arch. The Committee consisted of Lord Plymouth, Mr. Blomfield, and Mr. Lionel Earle, secretary of the Office of Works, representing the Government; the chairman of the London County Council, Lord Peel, and Mr. Andrew Taylor, chairman and vice-chairman respectively of the Improvements Committee, representing the London County Council; and Mr. Lyon Thomson, Mayor; Mr. Somers Cocks, ex-Mayor; and Mr. Davis, chairman of the Improvements Committee, representing Westminster City Council. The full Committee had not yet met, but various meetings had been held, and negotiations were in progress. It was impossible to say when the report would be issued.

### *Westminster Hospital Site.*

Sir Henry Craik asked whether the Government, having decided not to acquire the site of Westminster Hospital, would exercise the powers they possessed over the site in order to secure in the public interest such rearrangement of the frontage as might provide an adequate thoroughfare from the West to Parliament-square.

Mr. Wedgwood Benn said: The First Commissioner considers that measures for improving thoroughfares are primarily matters for local authorities. If they should approve any particular method of rearrangement he will be glad to co-operate as far as his powers extend.

### *The Old General Post Office.*

Mr. Harris asked the Postmaster-General whether any suggestion had been made that, in the case of the erection of new buildings on the site of the old General Post Office in St. Martin's-le-Grand, the Government should co-operate with the local authorities in effecting a widening of that thoroughfare by the surrender of a portion of the land free of cost; whether such surrender could take place without any interference with the plans of the new building; and whether he could give any indication that a satisfactory arrangement could be made between His Majesty's Government and the local authorities concerned.

Mr. Herbert Samuel, in a printed answer, stated: I have received from the Corporation of London proposals for the allocation of parts of the site of the old General Post Office to street improvements, and these proposals are receiving careful consideration by myself and the First

Commissioner of Works, in conjunction with the Treasury. The surrender of land proposed would necessitate considerable interference with the plans of the new building, which had been provisionally made. The land was purchased for the Post Office out of the public revenue, and any transfer of part of it to the Corporation for road widening would have to be by way of sale.

## TRADE AND CRAFT.

### *Annual General Meeting of Messrs. E. Pollard and Co., Ltd.*

The first annual general meeting of this firm since its incorporation as a private limited company, was held on April 20th. The chair was taken by Mr. E. Pollard, who moved the adoption of the reports and balance-sheet for the year. The resolution also included an authorisation for the payment of dividends at the rate of 6 per cent. per annum on the Preference shares, 10 per cent. per annum on the Ordinary shares, placing the sum of £2,837 to reserve. Messrs. G. W. Colwell and F. W. Elsbury joined the board as directors. Messrs. A. B. Welchman and Co. were re-elected as auditors. The resolution was duly seconded by Mr. H. M. Barnes, director and general manager, and carried.

Mr. Pollard stated that the accounts and balance-sheet before the meeting were in themselves a fairly eloquent testimony of the prosperity and progress of the business, and it was scarcely necessary for him to trouble the shareholders with a long speech. The firm had been established nearly nineteen years, and had been continually growing, paying its way, and making profits. For the fourth time the business had outgrown its home, and they were now looking forward to being able to make use of a portion of their large new factory within the next three months, and he hoped that by the end of the year the whole factory would be in full swing. Mr. Pollard stated that business prospects were very bright indeed. The firm had for many years past established itself in the forefront of the shopfitting trade, and the reputation which the firm had made for economical production and sound workmanship was now an exceptionally valuable asset to the business, as was indicated by the many repeat orders and series of important contracts placed with them by clients of long standing. During the year the sundries and window-fitting departments had made exceptional strides, and the firm's recent introductions, such as interchangeable shop fronts, standardised shop fronts, the new frameless, airproof, "Kwikserving" fixtures, and other improvements in shop fronts and interior fittings, had attracted an extraordinary amount of attention.

## UNIVERSAL HOLLOW BRICK FLOORS.

Hollow brick floors, of which there are several varieties on the market at the present time, are being increasingly adopted on account of the saving which they effect in steelwork (owing to the reduction in the dead weight) and in the ultimate cost of building operations. A floor of this type is the "Universal" floor of the Universal Concrete and Construction Co., Ltd., of 20, Victoria Street, Westminster. The hollow bricks of which it is composed are made, under pressure, of an incombustible material, and chemically treated in a way which renders them of great strength, and entirely fire-resisting. They are made in various depths, and in all cases their upper parts contain the necessary sectional area of material in compression. Accordingly, no concrete laid *in situ* is required in the construction of these floors, rapid setting and drying being assured. The shape of the bricks allows of the transverse and vertical joints being grouted together, and the rods are embedded at the same time, thus effecting a considerable saving in time and cost. The bricks do not expand under excessive heat, and consequently there is no danger of cracked ceilings nor of thrust on the walls. They are dead true to shape, enabling ceilings to be rapidly finished with a thin coat of plaster, and an upper floated surface can be prepared with material not exceeding  $\frac{1}{4}$  in. in thickness, ready to receive wood blocks or tiles. The important feature in the construction of "Universal" floors is that the rods are completely encased in a perfectly fire-resisting material, thus eliminating all risk of failure in the event of fire. No better proof of the reliability of the work of the firm could be desired than the fact that, although their engineer has designed and executed floors for more than fifteen years, no mishap of any kind in connection with them has ever occurred.

The floors, which have been subjected to severe weight-carrying tests, are constructed in various depths from 5 in. upwards, over any spans, and to carry any loads required. The section which we reproduce shows a 10 in. floor with free ends, having double horizontal tension rods and a compression rod and shear stirrups. Its approximate dead weight is 58 lb. per square foot. This type of floor is specially adapted to long spans, such as are required in hospital wards. The dead weight of "Universal" floors is less than half that of solid floors of equal depths. In order to cope with increasing business, the Universal Concrete and Construction Co. are now completing, at Hampton, Middlesex, new works, some seven acres in extent, containing a most up-to-date installation of appliances and machinery. In this way they will have many additional facilities for carrying out work entrusted to them.



# COMPLETE LIST OF CONTRACTS OPEN.

Unless expressly stated to the contrary, all deposits required for bills of quantities, etc., are returned on receipt of *bona-fide* tenders.

The words "Fair Wages Clause" inserted in certain paragraphs signify that persons tendering must conform to a fair wages clause in the Contract, which requires them to pay the rates of wages current in the district.

## BUILDING.

May 22.—**SCHOOL ALTERATIONS. Hull.**—Alterations and additions to Lambert Street School, for the Corporation. Drawings and specifications may be seen at the office of Joseph H. Hirst, City Architect, Guildhall, Hull, and quantities obtained upon deposit of £2 2s. Tenders to the Secretary of Education, Education Offices, Hull.

May 22.—**SANATORIA EXTENSIONS. Birmingham.**—Execution of the following for the Public Health and Housing Committee, in accordance with plans and specifications prepared by W. H. Ward, Architects, Paradise Street, Birmingham:—(1) Extensions to the sanatorium, Yardley Road, Birmingham; (2) extensions to Salterley Grange Sanatorium, Cheltenham. Applications to J. Keyte, Clerk to the Public Health and Housing Committee, Council House, Birmingham, accompanied by deposits of £5 5s. and £2 2s. respectively. Bills of quantities will be supplied by George Lewis, Quantity Surveyor, 33, Newhall Street, Birmingham. Tenders addressed to the Chairman of the Public Health and Housing Committee, Council House, Birmingham. Fair wages clause.

May 22.—**ROOFWORK. London, E.C.**—Supply of the following stores, for the Great Indian Peninsula Railway Company: Roofwork for locomotive erecting shop, Parel. Specifications and forms of tender may be obtained from R. H. Walpole, Secretary, Company's Offices, 48 Conthall Avenue, London, E.C., on deposit of a fee.

May 22.—**RENDERING. Cheltenham.**—Rendering with cement mortar the floor of a brick reservoir (about 14,000 square yards) at Hewletts, for the Corporation. Specification may be obtained from J. S. Pickering, Borough Water Engineer, Municipal Offices, Cheltenham, to whom tenders are to be sent.

May 22.—**ALTERATIONS, ETC. Cottingham.**—Alterations and additions to the Primitive Methodist church, Cottingham. Tenders to Blackmore and Sykes, Architects, 3, Alfred Gelder Street, Hull. Bills of quantities may be obtained and the drawings seen at the offices of the Architects.

May 22.—**BUILDING WORKS. Fochabers.**—Execution of mason, carpenter, and slater work of the following, on the Gordon Richmond Estates: (1) New hay house, cart shed, and loft, at Upper Dallachy; (2) repairs to steading at Nether Auchenreath; (3) new byre and turnip shed at Cowiemuir; and for (4) mason and slater work of new loft over mill at Gordon Castle Home Farm; (5) mason and carpenter work of new covered court, Newbigging; (6) carpenter work of new wash-house, Broadley, and repairs to dwelling-house there. Plans and specifications may be seen at the Estates Office, Fochabers. Tenders to D. J. Cunningham, Factor.

May 22.—**POST OFFICE. Bathgate.**—Erection of Bathgate new post office, for the Commissioners of H.M. Works and Public Buildings. Drawings, specification, and a copy of the conditions and form of contract may be seen on application to the Postmaster, Bathgate. Bills of quantities and forms of tender may be obtained at H.M. Office of Works, 3, Parliament Square, Edinburgh, on deposit of £1 1s. Tenders to the Secretary, H.M. Office of Works, etc., Storey's Gate, London, S.W.

May 23.—**TOOL SHEDS. Kent.**—Supply and erection of tool sheds of a standard pattern for use in connection with gardening classes, to be supplied, delivered, and erected in any part of the County of Kent, for the Education Committee. Drawing and specification prepared by the Committee's Architect, Wilfrid H. Robinson, of Caxton House, Westminster, can be seen and further information obtained at the Committee's offices, or at the offices of the County Medical Officer of Health, Mill Street, Maidstone, Kent. Tenders to Fras. W. Crook, Secretary, Caxton House, Westminster, S.W.

May 23.—**HOUSES. Merthyr.**—Erection of 32 houses on the Gellifaelog Estate at Merthyr, for the Merthyr Co-operative Garden Village Society, Limited. Applications to the Architect, Housing Reform Company, Limited, 3 and 4, Park Place, Cardiff.

May 24.—**SCHOOL WORKS. Woodhouse (Yorks).**—Execution of the following works at the Woodhouse Council School for the West Riding County Council. (1) Taking down and reconstructing closets. (2) Reglazing, providing and fixing new folding screens; breaking out new doorways and windows. Specifications and forms of tender may be had from S. Abson, Divisional Clerk, Education Offices, Woodhouse.

May 24.—**ADDITIONS. Lelant.**—Additions at the West Cornwall Golf Club, Lelant, according to plans and specification, which may be seen at the office of Sampson Hill, Architect and Surveyor, Green Lane, Redruth. Tenders to the Chairman of the Committee, West Cornwall Golf Club, Lelant, S.O.

May 24.—**COTTAGES. Southmolton (Devon).**—Erection of ten workmen's cottages, for the Town Council. Plans and specifications may be seen between the hours of twelve noon and three p.m. at the office of H. C. E. Rayner, Borough Surveyor, and from whom further particulars may be obtained. Tenders to P. Louis Riccard, Town Clerk, Dated Town Clerk's Office, Southmolton.

May 24.—**SCHOOL. Ballyferriter (Co. Kerry).**—Erection and furnishing of St. Ita's National School, Ballyferriter, County Kerry, for the Board of Public Works. Plans and specification can be seen at the District Office of Public Works, Tralee. Tenders to H. Williams, Secretary, Office of Public Works, Dublin.

May 24.—**FILTER HOUSE, ETC. Chesterfield.**—Construction of a filter house and a valve house in reinforced concrete, for the Chesterfield R.D.C. Particulars may be obtained from the Council's Waterworks Engineer, G. Frith, Waterworks Department, R.D.C. Offices, Chesterfield. Tenders to R. F. Hartwright, Clerk, Union Offices, Chesterfield.

May 26.—**DWELLING HOUSE. Brigg (Lincs.).**—Erection of a detached dwelling house at Brigg, Lincolnshire. Plans and specifications may be seen upon application to H. Stamp, J.P., Brigg, and with W. H. Buttrick, P.A.S.I., Architect, 107, High Street, Scunthorpe, where tenders are to be delivered.

May 26.—**POLICE COURT ALTERATIONS, ETC. Beaconsfield.**—Alterations at police court, Beaconsfield, and erection of police cottage, etc., for the Bucks County Council. Plans and specifications can be seen at the County Surveyor's Office and at the Police Station. Tenders to R. J. Thomas, M.Inst.C.E., County Surveyor, County Hall, Aylesbury.

May 29.—**FIRE-STATION, ETC. Croydon.**—Erection of a fire station and library in Brigstock Road, Thornton Heath, for the Council. Specifications, conditions, bills of quantities, and forms of tender, may be obtained on application at the Borough Engineer's office, Town Hall, Croydon, upon deposit of £1 1s. Tenders to Saml. Jacobs, Deputy Town Clerk, Town Hall, Croydon.

No Date.—**CONVERSION. Settle.**—Conversion of shop property into bank premises at Settle, for the London Joint Stock Bank, Limited. Quantities may be obtained from James Hartley, Architect, Skipton.

No Date.—**PARISH ROOM. Penn.**—Erection of a parish room, at St. Bartholomew's Church, Penn. for the Vicar and Churchwardens. Quantities will be supplied upon deposit of £1 1s. with A. Eaton Painter, Architect, 43, Lichfield Street, Wolverhampton.

(Continued on page xx.)

Telegrams: "DRY WAINSCOT, LONDON."  
Telephone: 1339 London Wall. 3746 Central.

## WM. OLIVER & SONS, LTD.,

Thoroughly Seasoned Wainscot,

Mahogany, Walnut, Teak, and other  
Hardwoods, in all Thicknesses.

Austrian Wainscot Logs and Planks.

Office: 120, BUNHILL ROW, LONDON, E.C.

CENTRAL BUILDINGS, Westminster, S.W.

(Opposite Westminster Abbey).

HALLS AND COMMITTEE ROOMS TO LET  
FOR APPROVED PURPOSES.

### ACCOMMODATION.

LARGE HALL, 2,700, for Public Meetings, Congresses, Concerts, etc.

SMALL HALL, 550, for Public Meetings, Congresses, Concerts, etc.

CONFERENCE HALL, 100, specially adapted for Arbitrations, etc.

COMMITTEE ROOMS, 120 and 50, respectively.

TEA ROOM, equipped for 500 persons.

Apply, the Agents, Room 187, Central Buildings, Westminster, S.W.

(Telephone: Victoria 3997).

## SYDNEY PRIDAY, AUSTRIAN WAINSCOT.

Office:  
St. George's House, 6/8, EASTCHEAP.  
Telephone: 667 Av.

# THE BRILLIANT SIGN CO., LTD.

Head Offices: 38, GRAY'S INN ROAD, LONDON, W.C.

## Actual Makers of all kinds of SIGNS.

PRICES LOW.

QUALITY HIGH.

 Write for Free Estimates and TRADE TERMS. 



# THE ARCHITECTS' & BUILDERS' JOURNAL.

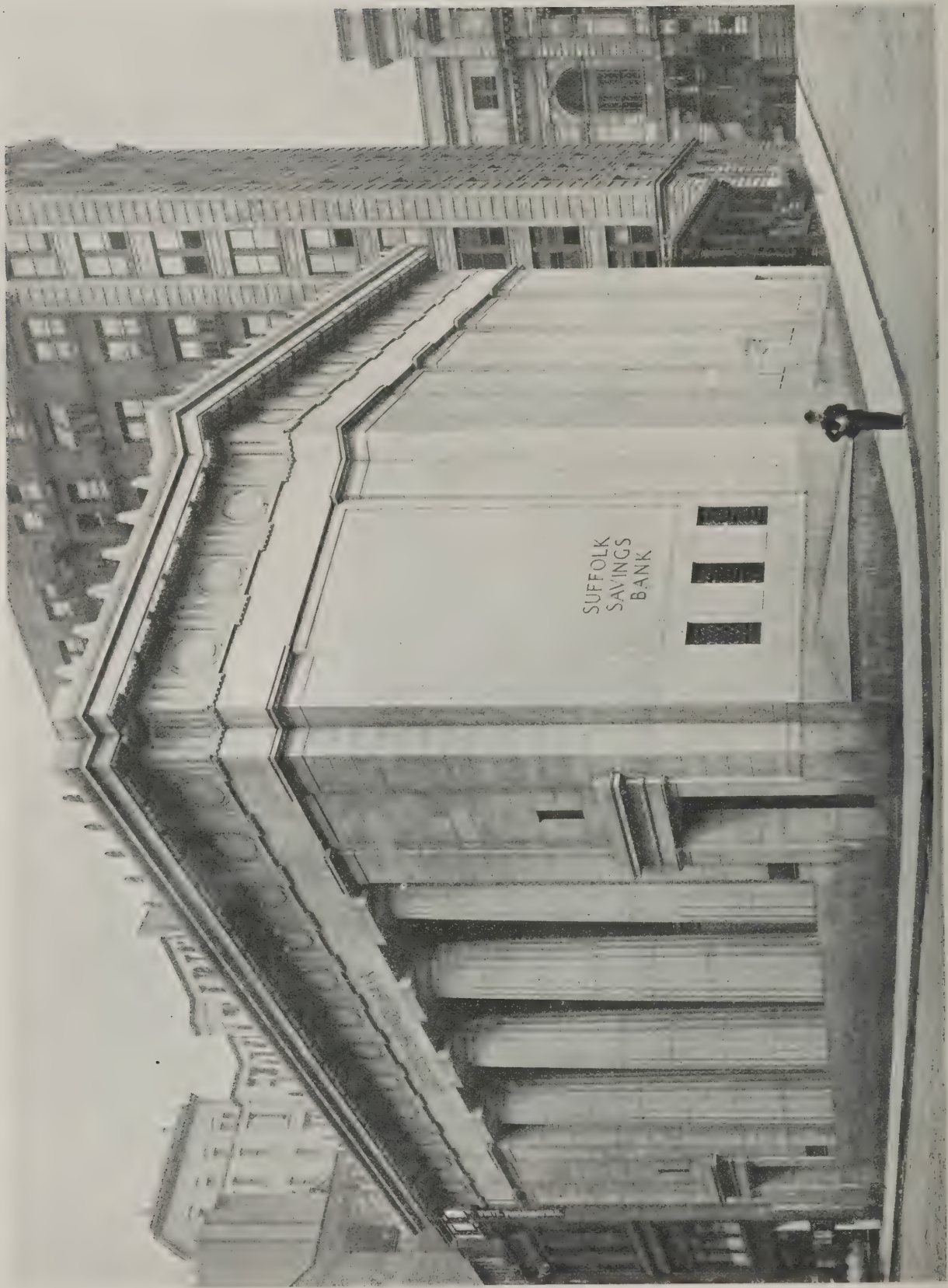
Wednesday, May 28, 1913.

Volume XXXVII. No. 959

No. 35.



(From Piranesi.)



SUFFOLK SAVINGS BANK, BOSTON, MASS., U.S.A. CASS GILBERT, ARCHITECT.

(See page 504.)



# THE ARCHITECTS' & BUILDERS' JOURNAL.

MAY 28, 1913.

CAXTON HOUSE, WESTMINSTER.

VOLUME 37. No. 959.

## Formal Architecture in a Picturesque Setting.

It is one of the drawbacks of Art, as it is of Nature, that however much one attempts to classify, label and pigeon-hole its phenomena, there are certain anomalies which refuse to be disposed of in a neat and finite way. How simple and satisfactory it would be, for instance, if one could say that Classical architecture was always associated with a formal setting, and that Romantic architecture naturally demanded and invariably received a picturesque background; what more obvious than to instance Roman buildings placed in their severely symmetrical fora, and Italian Renaissance villas surrounded by their formal gardens, as proofs of the first statement, and Mont St. Michel or Durham Cathedral as examples of the other? The Gothic Revival, again, in this loose but eminently satisfactory generalisation, fully accounts for and coincides with the invention of "Landscape gardening," which, under the guise of *Jardin Anglais*, spread over the whole continent of Europe in the trail of the romantic movement.

But these generalisations would be strangely wide of the mark; the truth is much more disturbing. Without going into the question of the invariably picturesque setting of Gothic architecture, it must be confessed at once that Classical architecture is by no means always found in formal surroundings—whether the word implies a garden or park or a more urban juxtaposition with other buildings. Without wishing to fall into the above-mentioned error of injudicious pigeon-holing, the theory might be hazarded that it is the looser phases of Classical architecture which have felt the necessity of a hard symmetric setting in order to buttress up this only partial academicism; conversely, whenever there has been a tendency to revert to purer and severer forms—in a word, whenever Greek influence has become predominant, there may be observed a leaning towards picturesque surroundings, as though the contrast of rocks or unkempt forest trees served but to enhance the exquisite artificiality of the building. The remark is frequently made that a mountainous site naturally requires an irregular jumble of a building to harmonise with its rugged outline, appearing in fact insensibly to grow out of its surroundings; but it is equally certain that a Greek temple on a rocky promontory is as effective by dint of complete contrast as the other is by reason of general harmony.

It will always be a keenly debatable question whether this irregularity, of which the Acropolis at Athens is the capital example, arose from sheer unacquaintance with the laws of symmetrical grouping, or whether, as M. Choisy ingeniously tries to prove, the units hang together in a subtle picturesque system of which we have lost the key of appreciation; or, finally, whether contemporary artists were entirely dissatisfied with the arrangement but were overruled by religious veneration for holy spots and priestly requirements. The last explanation is most frequently heard; but though it undoubtedly accounts for certain apparently arbitrary asymmetries, it cannot explain an invariable

contentment with Nature's uneven sites, so different from the Roman desire to level mountains, if necessary, in order to produce a balanced setting. Anyhow, one instinctively thinks of a Greek temple set on rocks or in a deep valley or in a clearing of a grove of trees, and this association has been followed in the small replicas, whether rotundas or rectangular, which have been set up as monuments in more modern times; the temple of *Æsculapius* overlooking a lake in the Borghese gardens, the Temple of Friendship among forest trees at Potsdam, the rotunda among the alabaster crags of the Buttes Chaumont in Paris, the Burns Memorial on the Calton Hill in Edinburgh, and the Doric chapel overlooking the quarry-cemetery of St. James in Liverpool (a picturesque site that would have suited a Classical cathedral better than the Gothic that is being built); not one of these has the merest approach to a formal setting.

What has always been instinctively used for a small monument was consciously worked up into a theory of picturesque site-planning during two periods subsequent to the Renaissance, when architecture approximated in purity and simplicity to the Greek. The Louis Seize in France and the Adam period in England contain many examples of this apparent inconsistency. The *Petit Trianon*, in which Louis Quinze is already prophetic of its follower's severity, is at the parting of the ways—on one side the old formal French garden, probably the last of its kind; on the other the "*Jardin Anglais*" laid out for Marie Antoinette. Occasionally, as at Bagatelle, the immediate surrounding of the house was kept formal and the irregular tree planting brought up to its dividing balustrades; but in Adam's house of Kedleston, in Derbyshire, the great free sweep of the drive and lawn meets the stiff lines of the noble south portico. There is in existence a volume of designs for cottages and small houses by Sir John Soane, in which he has gone to the trouble of adding "characteristic scenery" that there may be no mistake as to the architect's intentions. It will thus be seen that the invention of Landscape Gardening antedates the Gothic Revival by many years. The glorious valley-garden descending from Prior Park at Bath, with the Palladian bridge as a "picturesque" incident in the view from the terrace, is perhaps the highest achievement in this country of the landscape setting.

The second exemplary period belongs exclusively to France and to the time when buildings were being created by Hittorff, Garnier, Duc, Labrousse, and Ginain. Town-planning in the hands of Haussmann was on Roman and orthodox Renaissance lines, but gardening under Alphand reverted to Greek freedom; and we find the Bois de Boulogne and the Bois de Vincennes transformed from a Louis XIV. forest intersected by straight drives meeting on "rond points" to its present landscape state: the forest trees planted in the Louvre-courtyard: picturesque additions made to the Luxembourg gardens: and the Parc Monceau, with its delightful Classic ruins, entirely remodelled. This, one might say, was not so much



providing settings for buildings, as town gardening; but wherever possible natural untrained foliage was opposed to Classical architecture. In the boulevards a single row of trees could only be formal, but the Avenue du Bois de Boulogne shows at once Alphand's conception of the setting for a street of formal houses.

It is not the object of this note to eulogise landscape gardening in itself, which, in the heyday of its corruption, produced the absurdities of the Anglo-Chinese garden and whose rickety descendant is the jobbing gardener of to-day with his worm-like walks; but merely to point out this apparent inconsistency, which, however, in its converse has a very important bearing on modern problems. If architects of the greatest integrity were content to have their buildings set in carefully contrived picturesque surroundings, may we not, conversely, given an irregular hillside, a sea front or a winding garden suburb street, quite confidently design for the site buildings which are as formal as we please? Thus may be exploded the fallacy that a level site, wide open space and straight approach are essential to the square house, whereas rocks or hills or woods require half-timber work, gables, turrets and exaggerated chimney stacks.

L. P. A.

#### St. Peter's Square, Hammersmith.

**A** THREATENED London square never lacks champions, who nearly always prevail. St. Peter's Square, Hammersmith, is in danger, and the Metropolitan Public Gardens Association is trying to effect a rescue. The incident is valuable as showing that this Association can still find useful work to do, although, judging from the very inadequate financial support which it receives, the public seem to think that its mission has been accomplished. At any rate, the Association has undertaken to bear the entire cost of laying out St. Peter's Square as a public garden. It has thus set an excellent example—and in doing so has again exemplified one of its chief functions to the Hammersmith Borough Council, whom it has urged to make an offer to share with the London County Council the cost of purchase and maintenance of the square. Both councils, however, are remarkably coy, and the Association is therefore impelled to exercise another of its functions, by endeavouring to enlist public sympathy. "What a farce it is," writes Mr. Basil Holmes, the secretary of the Association, "to build so-called garden suburbs where an adequate supply of open spaces is an essential feature and at the same time to allow the open spaces which do exist, though in an insufficient measure, in districts already built over, to be destroyed." Certainly London cannot afford to lose even the meanness of its open spaces, and we heartily sympathise with Mr. Basil Holmes in the hope that the scandal of St. Peter's Square being obliterated by small house property will be averted. It is this square which is surrounded by those interesting early nineteenth-century houses which we illustrated some months ago.

#### Deception at Hampton Court.

**T**HE painters who were recently at work on Hampton Court Palace apparently thought it a good opportunity to correct the architectural blunders of Sir Christopher Wren. Noticing the "blind" circular windows on the south front, which Wren introduced in order to preserve the harmony of his design, they promptly coloured the brick filling a dull grey, in representation of glass, and then painted on a series of vertical and horizontal white lines in imitation of sash bars. The deception is immediately apparent, and it makes Wren's work look rather ridiculous. We suggest that the Office of Works, who are presumably responsible, would be well advised to restore the south front to its original appearance. This painting of blind windows is, of course, no new thing—we recall

an old example with the blinds painted as drawn up crooked (presumably as a satire on the servants); but it is an altogether reprehensible practice, and a Government Department ought not to countenance it.

#### Sketching and Measuring.

**W**ITH the advent of the summer comes the principal time for sketching and measuring. The student, however, should be on his guard against wasting time in a very pleasant way. If he is seriously working with the only proper ultimate view he ought to have—i.e., the design, embellishment, and equipment of buildings, he will do well to avoid making pretty studies and spending a great deal of time on measuring work of which he is never likely to make use. The chantries and the fonts and a score of other similar subjects have had much precious time devoted to them which might have been far better spent in making a careful survey of the mass and main proportions of some civic building by a scholarly architect, or a thorough investigation of the manner in which old roofs were put together, or a close study of the window casements and fasteners in such an old house as the one at the top of the High Street in Guildford. It is, of course, admirable to have knowledge of everything, but life is not long enough, and even in student days it becomes necessary to specialise to a certain extent. A student, for instance, who has given special attention to Georgian domestic work, and has allocated the first place to this in all his excursions, will find his sketch-books and portfolios filled with far more useful material than if he had a miscellaneous collection, mostly ecclesiastical in character. Exhibitions at the R.I.B.A. have brought this only too prominently into view. The common practice is, in our opinion, a mistake, for it leads to knowledge all shreds and patches.

#### Town-planning Schemes.

**W**E have already pointed out in these columns the necessity for town-planning schemes to be dealt with by the architect, instead of being left to the borough surveyor, and as the movement for new areas progresses this necessity becomes more and more apparent. A great many authorities are now taking up town planning. The most recently approved schemes are those by the Corporation of Stockport, the Urban District Council of Prestwich, and the Rural District Council of Wirral. In the case of Stockport the scheme is to apply to an area of about 1,000 acres in the borough. At Prestwich the scheme is to extend to an area of about 1,800 acres in the urban district. In the case of Wirral two schemes are to be prepared, one relating to about 4,300 acres, and the other to about 3,000 acres. We hope that in all these cases the architectural side of the question will receive full attention.

#### A Memorial to Van Eyck.

**A**N international effort is now being made to erect a memorial to Hubert and John van Eyck in Ghent, where the main panels of the world-famous polyptych of "The Adoration of the Lamb," completed by the younger of the brothers in 1432, have their home. The Belgian sculptor, M. Georges Verbanck, has been commissioned to execute a monument and a site adjoining the Cathedral of St. Bavon and in the immediate vicinity of the chapel containing the altar-piece (or at least such part of it as still remains *in situ*) has been selected. An appeal for funds is now being made, and a committee comprising the Earl of Plymouth and a great many well-known men in the art world has been formed to gather in subscription from people in this country: which seems rather a strange proceeding, in view of the fact that, apparently, only a portrait statue on a pedestal is contemplated. We should have thought that in Belgium alone the necessary sum would have been raised.



## STAFFORD HOUSE: THE NEW HOME OF THE LONDON MUSEUM.

[Specially Contributed.]

STAFFORD HOUSE, recently purchased from the Duke of Sutherland by Sir William Lever, and presented to the nation as a permanent home for the London Museum, stands on an area of ground between St. James's Palace and the Green Park. It was designed originally by Benjamin Wyatt, for the Duke of York, who died before the completion of the work, when the building was bought by the Government for a sum approximating £82,000. Shortly afterwards it was actually offered to and accepted by the Royal Society, who, however, subsequently abandoned



STAFFORD HOUSE: THE GARDEN FRONT.

the idea of making the building their home, on account, it has been stated, of the increased expenditure involved and the general unsuitability of the accommodation provided. The house, together with its gardens, was sold in 1827 to the Marquis of Stafford for £72,000, on a ninety-nine years' lease, of which thirteen only remain to run, when the building will revert to the Crown.

Under the direction of the Marquis of Stafford the house was completed from the designs of Wyatt and Barry, who added two storeys to its height (the top one of which is concealed by a high stone balustrade) and carried out a gorgeous scheme of internal decoration.

The house is square on plan, the principal front being on the north-west side. A large and somewhat gaunt-looking portico projects out beyond the general line of the building, and forms a sufficiently imposing main entrance. The south and west fronts, which face on the gardens, are very much alike in design, each being distinguished by a colonnade of six Corinthian columns. The east front, however, which overlooks a private roadway leading from the Mall to the courtyard of St. James's Palace, is kept perfectly plain.

The exterior, it will be generally admitted, is rather a dull and uninteresting piece of work, by no means representing Barry (who was chiefly responsible for the additions) at his highest level. There is, however, a certain air of sombre solidity and massiveness about the building that is successful enough. The frigidness of the exterior is in striking contrast to the magnificence of the interior: concerning which it may be noted that Queen Victoria once said to the then Duchess of Sutherland: "I have come from my house to your palace"—an observation that expressed extravagant praise.

Mr. E. Beresford Chancellor, who devotes a chapter to Stafford House in his fine work on "The Private Palaces of London," writes as follows: "Solid and to some extent majestic as is the exterior, it hardly gives promise of the magnificence—no lesser word will serve

—of the interior, with its vast apartments, its superb hall and grand staircase, its wealth of decoration, and, above all, its wondrous contents."

Wyatt was mainly responsible for the planning of the building, which is arranged on a grand though convenient scale. Access to the great hall is gained through immense doors, formed of mirrors. These doors, which are only opened on special occasions, reveal the grand staircase, with its double flight of steps leading to the gallery that surrounds the hall. No less than 80 ft. square, the hall rises to a height in the centre of 50 ft., the surrounding walls being built of imitation *giallo antico*, relieved at intervals by Corinthian columns of white marble. The staircase is gilded, and the floor is laid with red and white marble. The compartments in the walls are filled by Lorenzi's copies of pictures by Paul Veronese, representing "St. Sebastian Conducted to Martyrdom," from the original in the Church of St. Sebastian at Venice; "The Marriage of St. Catherine," from the picture in the Church of St. Catherine, Venice; "The Nativity," and "The Martyrdom of St. George," the original of which is now in the Church of St. Giorgi, at Verona. Two pictures by Murillo, which once hung in the wonderful gallery of Marshal Soult—"The Prodigal's Return" and "Abraham and the Angels"—have now been transferred from the hall to the gallery of Stafford House. The hall and staircase are lighted by innumerable candelabra, and the effect on the occasion of one of those brilliant functions for which Stafford House was formerly distinguished—when the hall was thronged with men and women ablaze with jewels and decorations—must have been one of singular magnificence.

Stafford House preserves memories of many eminent personalities of the Victorian era. Lord Ronald Gower, in his reminiscences, writes: "What a succes-



STAFFORD HOUSE: ENTRANCE FRONT.



sion of illustrious guests have been welcomed in this splendid hall! Poerio and his fellow-sufferers, still weak from their confinement in the prisons of Naples; Garibaldi the Deliverer, clad in his famous red garb; Livingstone and Charles Sumner, besides a host of princes and magnates, potentates and plenipotentiaries have ascended those storied stairs. On the principal landing of this staircase, fronting the great glass doors, . . . how many charitable meetings have been held, how many triumphs of music accomplished! Here Malibran, Grisi, Lablache, Rubini, and Tamburini have sung; here Ristori and Thellusson recited. Nor has this hall echoed only to the strains of Rossini, Bellini, and Donizetti; but also to the voices of philanthropists and patriots—to Lord Shaftesbury advocating the cause of the white and Garrison that of the black slave."

The Great Hall of Stafford House is surrounded, on the ground floor, by many splendid rooms. In the dining-room are pictures by Jacob Ruysdael, Claude, Wynants, Jan Hackaert, Pordenone, and others, including a large portrait of Harriet, Duchess of Sutherland, wife of the second Duke, with her daughter, painted by Lawrence in 1823. The Ante-Dining-room and the Red Drawing-room both contain many fine pictures, the former more than the latter, the general scheme of decoration of which includes rich hangings and carved gilded cornices. Fine as are the ground-floor rooms of Stafford House, those above easily excel them in magnificence—the gallery in particular, containing many of the pictures that once belonged to the famous Orleans collection.

Another fine room at Stafford House is the State Drawing-room, remarkable for the beauty of its elaborately carved and gilded ceiling and its white

marble mantelpieces with ormolu mounts. Other important apartments are the State Ante-room, the ceiling of which contains an allegorical painting by Paul Veronese, and the South-West Drawing-room, which is hung with green damask and decorated, in white and gold. The ceiling was painted in representation of the Solar System by H. Howard, R.A.

Notwithstanding its gorgeous magnificence, Stafford House is by no means overwhelming; many of its apartments, indeed, are remarkably homely and comfortable in appearance. The building affords ample space for the display of exhibits, and within its walls the London Museum will become a far more important institution than it could possibly hope to be in the cramped and rather unsuitable galleries of Kensington Palace. Stafford House, therefore, is admirably suited to the purpose to which it will henceforth be put; and the thanks of all Londoners are due to Sir William Lever for his munificent gift.

## BUILDINGS FOR SMALL HOLDINGS.

IN February, 1912, Mr. Walter Runciman, President of the Board of Agriculture and Fisheries, appointed a Committee (1) to inquire and report as to the nature and character of the buildings which should be provided for use in connection with small agricultural holdings in England and Wales, regard being had (a) to the convenience and requirements of the occupiers; (b) to considerations of economy, and also the possibility of the reduction of cost by the use of materials and methods of construction different from those ordinarily employed at present: (c) to the special agricultural and building conditions of the different



STAFFORD HOUSE: THE PICTURE GALLERY.

Photo: H. N. King.



parts of the country; and (d) to the various requirements of the Public Health Acts, and any orders or regulations made thereunder. (2) To submit a series of plans and specifications likely to be of assistance to local authorities and landowners for the purpose. The Committee consisted of Mr. Christopher Turnor (chairman); Mr. Colin Campbell; Mr. E. J. Cheney, an assistant secretary to the Board of Agriculture and Fisheries; Mr. F. R. Harding-Newman; Miss Constance Cochrane; Mr. Cecil Harmsworth, M.P.; Mr. A. Ainsworth Hunt, M.S.A.; Mr. H. H. Law, M.Inst.C.E., Deputy Chief Engineering Inspector of the Local Government Board; Mr. Henry T. Tate; and Mr. Raymond Unwin. Mr. C. W. Sabin, of the Board of Agriculture and Fisheries, was appointed secretary.

#### *Collecting Information.*

The Committee examined nineteen witnesses, and also obtained by means of circular letters a considerable amount of information, including plans of small farmhouses and buildings recently erected by private owners and county councils in various parts of the country, with details of the cost of the work.

The Committee also visited properties of the county councils of Northumberland, the East Riding of Yorkshire, Cheshire, Stafford, Shropshire, Lincolnshire, Norfolk, and Montgomery, and private estates in the counties of Northumberland, Stafford, Worcester, Lincoln, Norfolk, Essex, Hertford, Bedford, Wilts, Devon, and Montgomery; while a sub-committee visited Sweden.

#### *The Problem Stated.*

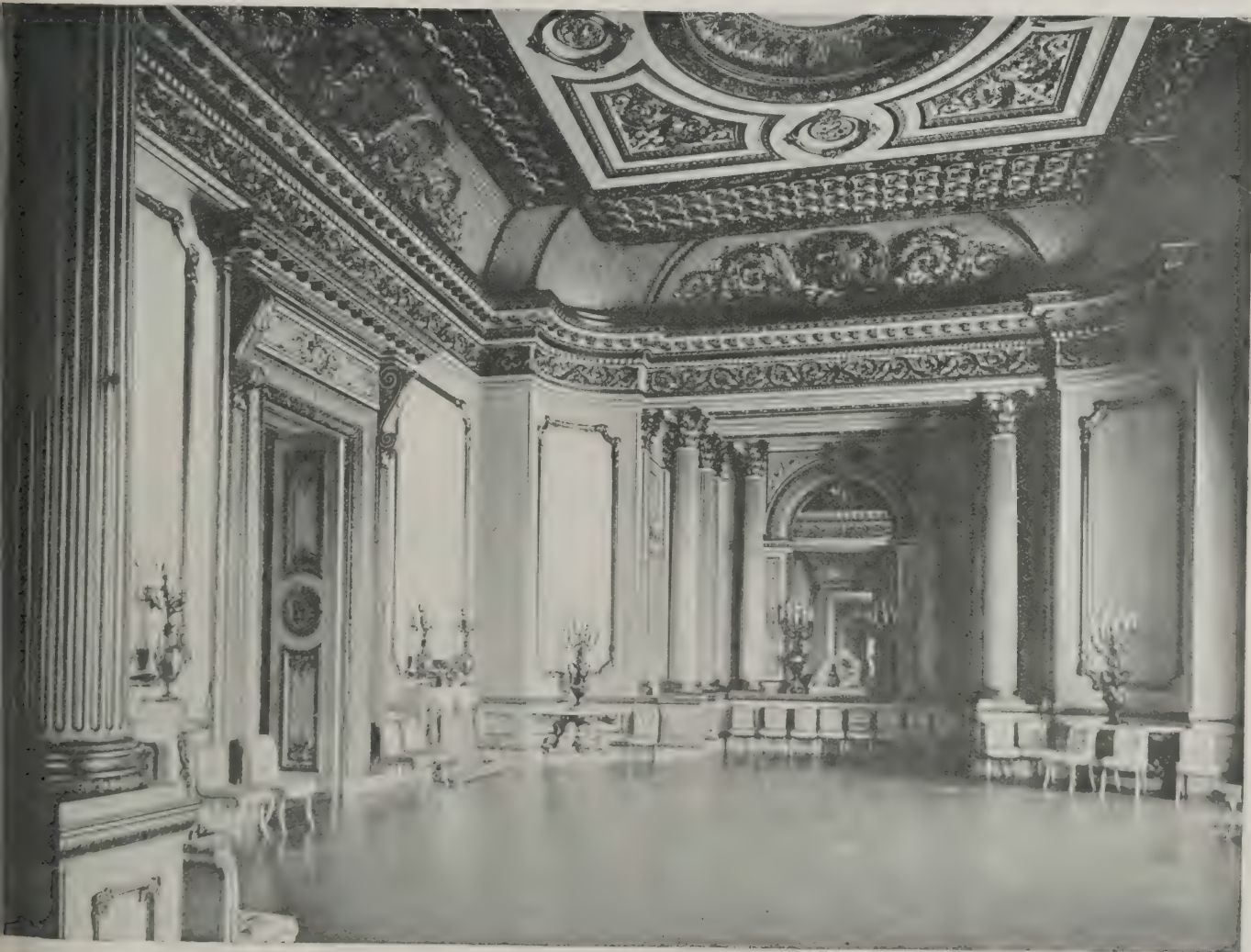
In their report the Committee say: "Stated in a sentence, the problem of the proper equipment of a small holding is to provide, at the smallest possible

cost, buildings that will be suitable and sufficient for the holding concerned, but not in excess of its practical requirements."

The Committee observe that it is no small element in the success of the small holdings movement that the buildings should be homely and attractive in appearance, as well as convenient in arrangement and economical in cost. Moreover, they say, the country districts of England and Wales are unsurpassed for variety and beauty of character, and it would be nothing less than a national misfortune if the increased development of small holdings were to result in the erection of buildings unsuited to their environment and ugly in appearance. Breadth and simplicity of design should therefore be aimed at, and the introduction of useless features for the sake of effect should be avoided. Orderly arrangement of the buildings, the observance of good proportion in the spacing and form of the door and window openings, the maintenance of some relation between windows of different sizes by means of a common unit, and other simple elements of good design which are costly only in thought and care, can and should be secured even where the cost of a building must be kept within strict limits.

#### *Minimum Requirements.*

The Committee, while recognising it as their duty to make practical suggestions for reducing the cost of building, wish to make it clear that they would deprecate any attempt to cheapen the construction at the cost of the ordinary requirements of health, decency, and convenience. They have therefore considered it helpful to fix, for the dwelling-house, a minimum standard of accommodation below which it would be undesirable in any circumstances to fall. With these we propose to deal next week.



STAFFORD HOUSE. THE STATE DRAWING-ROOM.

Photo: H. N. King.



## HERE AND THERE.

A COMMITTEE, in some way representative of the Royal Academy I believe, are at present considering the question of a memorial to the late Mr. Norman Shaw. Without doubt the usual series of alternatives will come before them, from a simple tablet to a portrait statue on a pedestal, and I would not mind hazarding the opinion that they will eventually settle down to a medallion wall monument for erection in some honoured position. Now these are very admirable memorials, but unfortunately we have such a plethora of them that still another will but add to the already superabundant stock without exciting our emotions, and after a few years have gone by we shall pass the monument as unnoticed as we do that of many another distinguished dead. I would therefore make the suggestion that a far better memorial to Norman Shaw than any monument in marble or bronze would be for the committee to publish a fine monograph dealing with the man and his work. Mr. Shaw, I believe, had a great dislike for publicity, and more particularly for illustrations of his work to be scattered broadcast, but I think it is due to his memory that there should be a really adequate photographic record of his chief works. Views might be given of each of his big country houses, like "Dawpool" and "Adcote," showing both the interior and exterior, and to them could be added a series of his town houses—like the house in Queen's Road—and his large business buildings, such as New Scotland Yard, New Zealand Chambers, and the White Star Offices in Liverpool. Some of his buildings have already been shown by very admirable photographs to a large scale; more especially, if I remember aright, in a German publication issued many years ago by Ernst Wasmuth; but there is no comprehensive record to turn to: hence, it would be the most fitting of all memorials to produce such a record. It is true that we have gone past the day when Norman Shaw led the van in the architectural world; it is true that much of his work has a Romantic-Classic flavour that we do not now regard with approving eyes; and it is true—let us be frank about it—that many of his buildings display features and details which are quite reprehensible—such as the split pediments and the stone "pokers" on New Scotland Yard. But after making all this discount, Norman Shaw still stands out as a great figure, and a survey of his many designs impresses on the mind the amazing fertility and pronounced ability of their author. Moreover, whatever may be our particular leanings in respect of architectural style, we cannot overlook the fact that Norman Shaw is a landmark in the latter half of the nineteenth century, and the point around which the whole current of architecture turned, from the last elements of the Gothic Revival to the new fashion of the "Queen Anne"—i.e., the Renaissance, from which all our present tendencies have developed. I am sure that if a really fine set of photographs of Norman Shaw's chief works were brought together in a good-sized monograph, well reproduced, we should all be astonished at the wealth of design which was embodied in a great personality.

The above reference to architectural photographs reminds me that, although on one occasion several months ago I dealt with subject-matter for the camera, other than the ubiquitous north choir aisle and ever-present "view of nave, looking east," I have never set down a few technical points which have been determined during an experience extending over many years, and which may be of service to those who know something about architectural photography, but not enough to produce real good results. Here, then, is the whole art in as few words as I can contrive. First, to take a good architectural photograph, it is essential

to have an anastigmat lens. There are a score of them on the market, and I will leave the reader to settle with his dealer which lens to get. For my own work I use a Ross-Zeiss convertible, so that with a whole-plate camera I can have a 7 in., an 11 in., or a 14 in. focus, which, for the benefit of the uninitiated, may be described as a progressively larger image; thus, with a 7 in. focus I may get the whole of a façade on the plate, with a 11 in. three-quarters of it only, but to a larger scale, and with a 14 in. only half of it, or less than half, but to a larger scale still. For architectural work I also regard a telephoto lens as a great acquisition, as it enables one to take details which are of great interest and use. The lens, then, is the all-important factor. As for the camera, the more one can dispense with trappings the better, though you will thereby lose that flush of pride which comes from the flash of brasswork. It is no use trying to make a camera see round corners, though some of the contrivances that are loaded on the apparatus do their best in this direction. Hence, let the movements of the camera be few. A big rise and fall of the front is essential, a swing-back not so essential (despite the statement in every photographic manual that it is), though useful in confined quarters. There must be a sturdy tripod and well-made dark-slides. For the rest, let us close our eyes to the seductive pages of Fallowfield and Houghton. Having thus caught our camera, let us cook the plate—to paraphrase a sporting adage. Exterior work we can pass by, as offering no special difficulties. It is inside that the trouble begins, as in a room having a carved white chimneypiece with a dark oak cabinet in a recess on one side, and a flood of light from a window on the other. Here the cardinal rule is to expose fully—that is, to overexpose the chimneypiece in order to get the detail on the oak cabinet, and to develop with 1 part of pyrogalllic acid to 3 parts of soda. And even then the negative will not be an even one all over, which can be printed while you are having breakfast (in the approved manner of amateurs). It will require to be masked with tracing paper and brown paper and what not—a troublesome and temper-trying process; but only in this way will you get the final print that shows the delicate shadow detail on the carved enrichment to the white chimneypiece and the grain of the wood in the oak cabinet. If I were doing it I should have an Imperial N.F. plate (backed, of course) and Page paper, but in these matters *chacun a son goût*, and I will not affirm that other makes of plates and paper are not equally good.

I have already observed in these columns how we keep setting on the architectural clock as time goes on. It is not so very long ago since the early nineteenth century was regarded as a most frigid, lifeless, and virtueless period, yet now there are enthusiasts galore who burn to point out to us the charm of unaffected design as displayed in the house fronts of this period—the merit which is enshrined in "Colonial" proportions, the delicacy of the reed moulding around door and window, the thin sash bars, and, especially, the excellence of the ironwork, sufficiently strong for its purpose, yet very light and graceful. And the more I look into the matter, the more I agree that there is great deal to approve in all this. Nevertheless, there is a certain barrenness about the houses of the early nineteenth century which is absent in what we are accustomed to call Georgian work, albeit the latter is far coarser in its detail. If, however, we were to compound from the two, the result would be altogether delightful; adding just that touch of individuality which is the enlivening feature in any work which can claim our interest.

UBIQUE.



## CORRESPONDENCE.

*The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents. Correspondents are asked to be brief, and to write on one side only of the paper.*

*A Portable School.*

*To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.*

SIRS,—I have much pleasure in sending you a plan and some photographs of a new portable school which has been erected at the village of Ellington, Northumberland; reference to which has recently been made in your columns by "Ubique."

For a long time past education authorities have been much harassed with the problem of how to procure a really portable school building—one that would admit of easy transit from one place to another. The question has been an open one for a long time, corrugated iron buildings not being considered suitable; in fact, it has been the experience of the Education Committee for the County of Northumberland that such buildings are not easily removed. Wood buildings are, of course, out of the question, as they are invariably erected as permanent structures.

Some time ago certain buildings were brought to the writer's notice which were used as temporary hospitals, and built on what is known as the Doecker system of light construction. These buildings are very common on the Continent, and can be taken to pieces and re-erected at very short notice. The new portable school at Ellington, Northumberland, has been designed on this principle, and took exactly twenty-four hours to erect, with one expert joiner and three other workmen.

The sections of the building are hooked together,

and the special material which forms the internal and external walling is thoroughly hygienic. It is easily washed and disinfected. The flooring, as well as the walls and roof, is made in sections, and consists of ordinary flooring boards. No foundations are used, the building being provided with adjustable supports or pillars, which compensate for any unevenness in the site.

This building is the first of its kind to be used as a school in this country, although one or two of the small open-air schools recently erected in the vicinity of South London by the London County Council are built of a similar material.

G. TOPHAM FORREST,  
Architect to the County of Northumberland Education Committee.

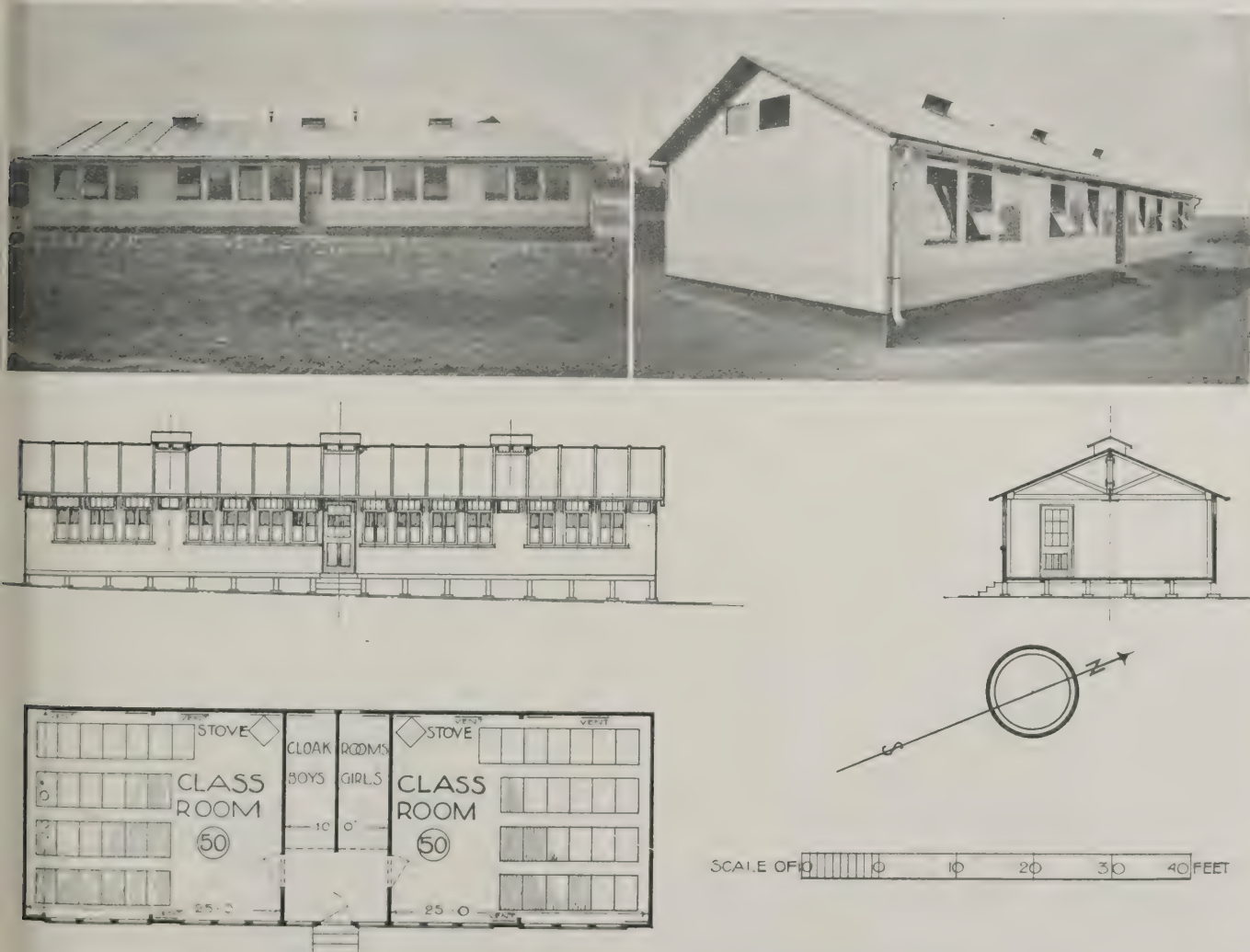
*The Cheap Cottage.*

*To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.*

SIRS,—Mr. Swain writes that he is in doubt whether my letter in your issue of April 23rd was "a dig at Mr. Runciman or another way of procuring free information as to how he constructs a 4-in.-thick reinforced concrete flat roof which won't crack or fall." From the description given by him of his method of construction there is nothing to learn. I practised similar methods possibly years before Mr. Swain. My letter in the "Daily News" was simply a reply concerning walls built of boiler ashes, and had no connection with roofs or the contents of my letter in your journal of April 23rd.

Mr. Swain's walls were not criticised by me at all; there was no reason for doing so.

My remarks were to the effect that Mr. Swain's cottage could not be built for £90 in any neighbour-



PORTABLE SCHOOL FOR 100 SCHOLARS AT ELLINGTON, NORTHUMBERLAND.



ST. GEORGE'S CHURCH, THORNTON HOUGH, CHESHIRE. J. L. SIMPSON, ARCHITECT.

hood, and I say so still, and that a roof as he describes it will not remain watertight. I have just asked the head of an asphaltting firm if he ever had to asphalt any concrete roofs which had been formed for any considerable time but not asphalted, and his reply was—"any number."

If you, sirs, can induce any qualified surveyor, country builder, or clerk of works unknown to me or Mr. Swain (that there may be no suspicion of collusion) to price the quantities at prime cost rates, I shall be pleased to send them to you. The result would be interesting and useful.

Croydon.

THOMAS POTTER.

## OUR PLATES.

### *House in the Grand Duchy of Luxemburg.*

THE house illustrated in our Centre Plate has been designed for Madame René Müller Laval by Mr. Ernest Newton, A.R.A., and is to be built in Luxemburg as soon as certain difficulties in the negotiations for acquiring the site have been overcome. As far as possible local materials will be employed in the construction—rubble for the walls, with stone groins and brick chimney stacks.

### *The Hall and Staircase at Stafford House.*

These are referred to in the article on Stafford House, on page 559 of this issue.

### *An American Bank.*

The banks of the United States are characterised by a monumental treatment which, while founded on French work, is essentially American. The bank at Boston illustrated on page 556 is a typical example by one of the most talented architects in the United States

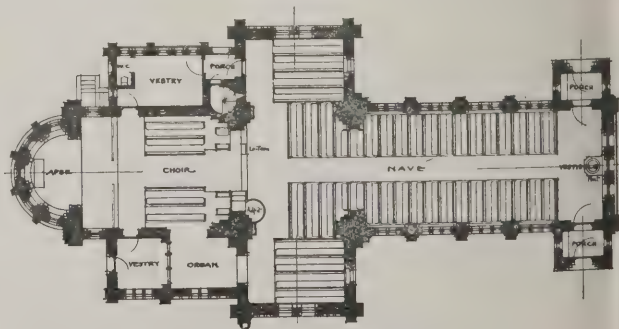
—Mr. Cass Gilbert. It is a particularly good treatment of a building on a corner site.

### *Nos. 43, 46, Southampton Buildings, London, W.C.*

A drawing of the façade of the above is reproduced on pages 570 and 571 as the twenty-sixth example in our series of working drawings by well-known architects. The design has been prepared for the erection of offices on a frontage of about 84 ft., adjoining the Birkbeck Bank. The materials to be used in the construction are Portland stone and brick, with wrought iron casements, reinforced concrete for the staircase and steel construction elsewhere. The architects are Messrs. Richardson and Gill.

### *St. George's, Thornton Hough.*

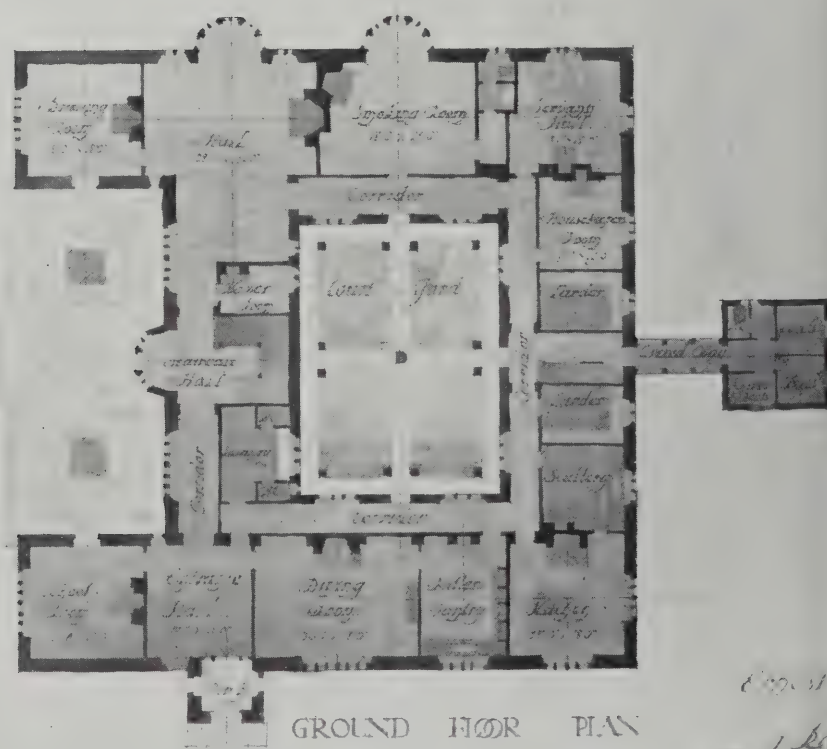
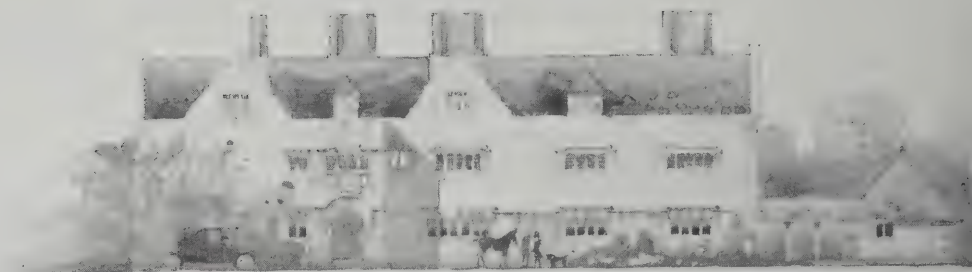
This church was built for Sir William H. Lever Bart., from designs by Mr. J. L. Simpson. The materials used are red sandstone for the walls, and Yorkshire flags for the roof. The woodwork throughout is English oak. The style adopted is late Norman.



ST. GEORGE'S CHURCH, THORNTON HOUGH.





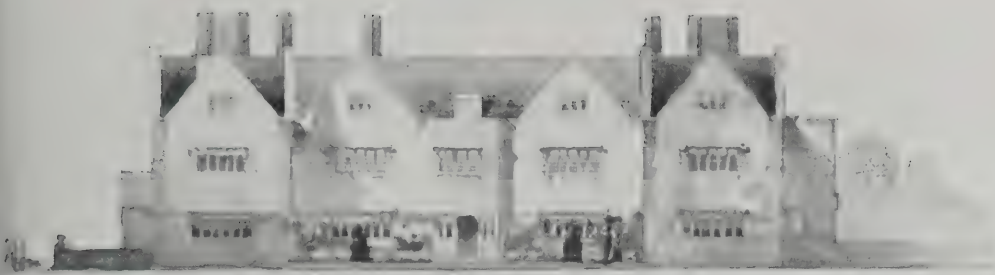


C-75011 A TAFETY

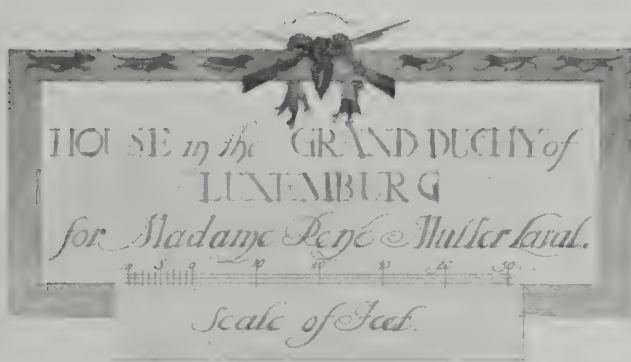
1890  
J. E. ...  
G. ...

(Royal Acad





SOUTH ELEVATION



*The Serrano chairroom  
are in the roof attic  
over B3, and C.C.*



FIRST FLOOR PLAN

in 1881  
Buildings  
Garden





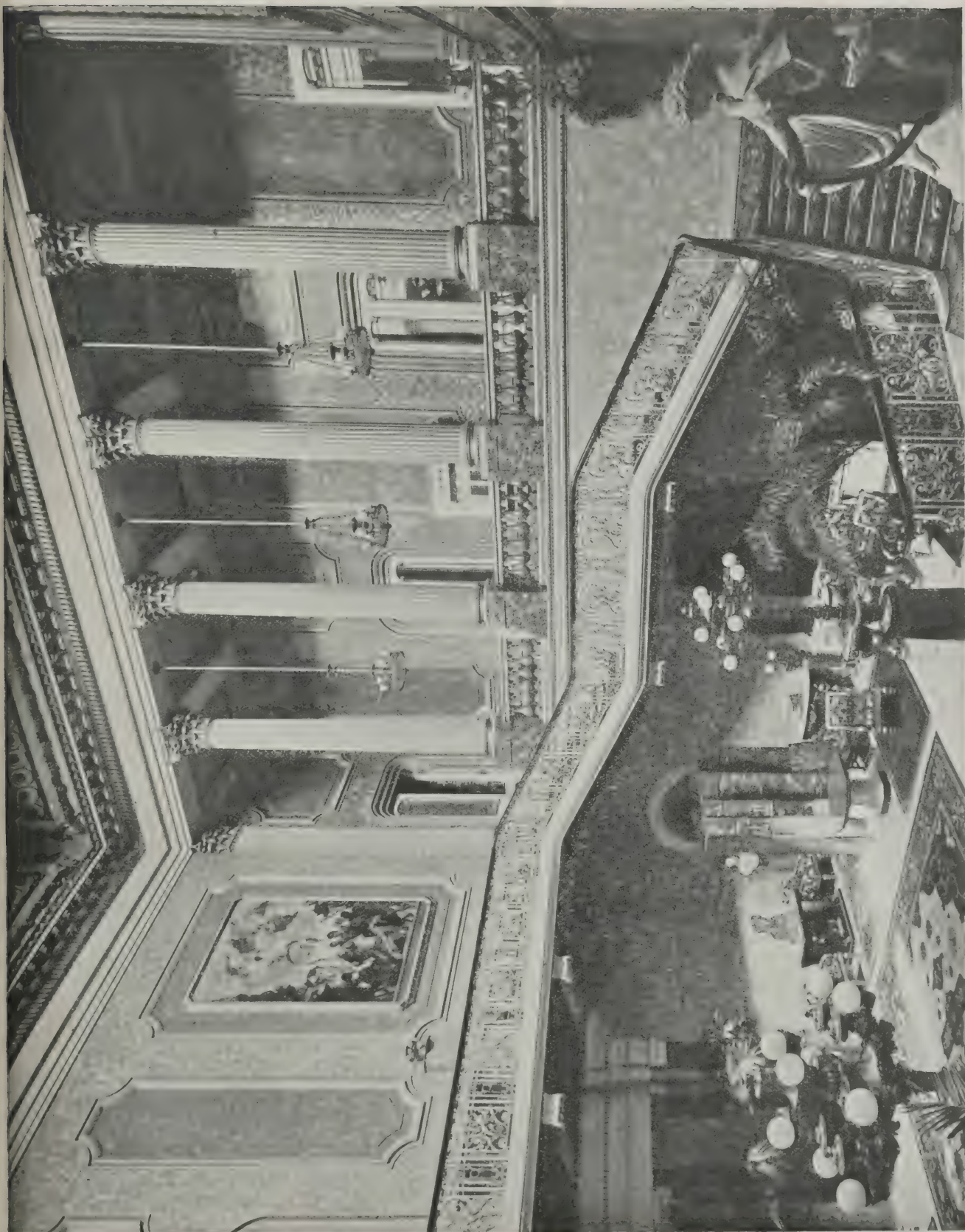
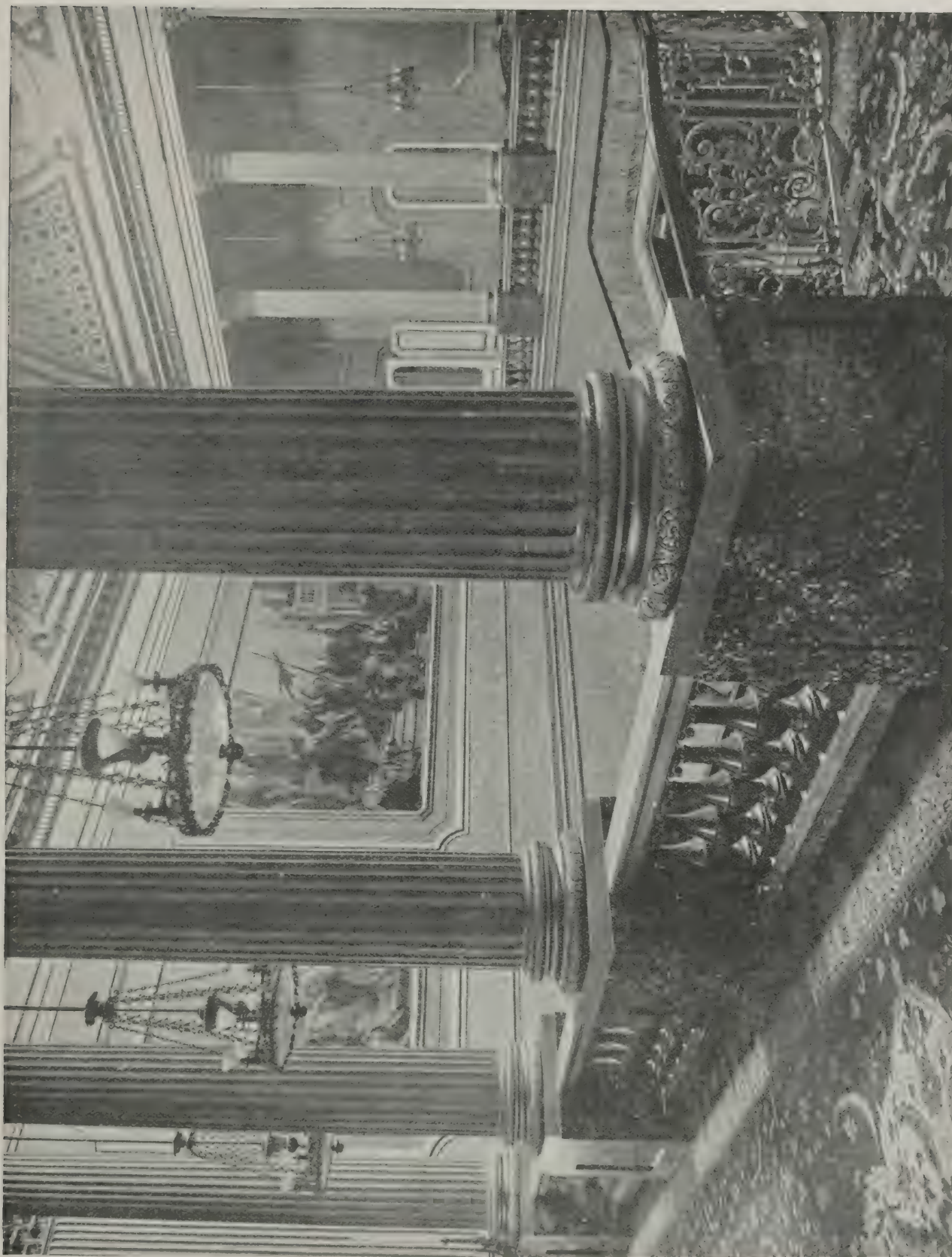


Photo: H. N. King.

STAFFORD HOUSE, LONDON: THE HALL AND STAIRCASE.  
(See page 564.)





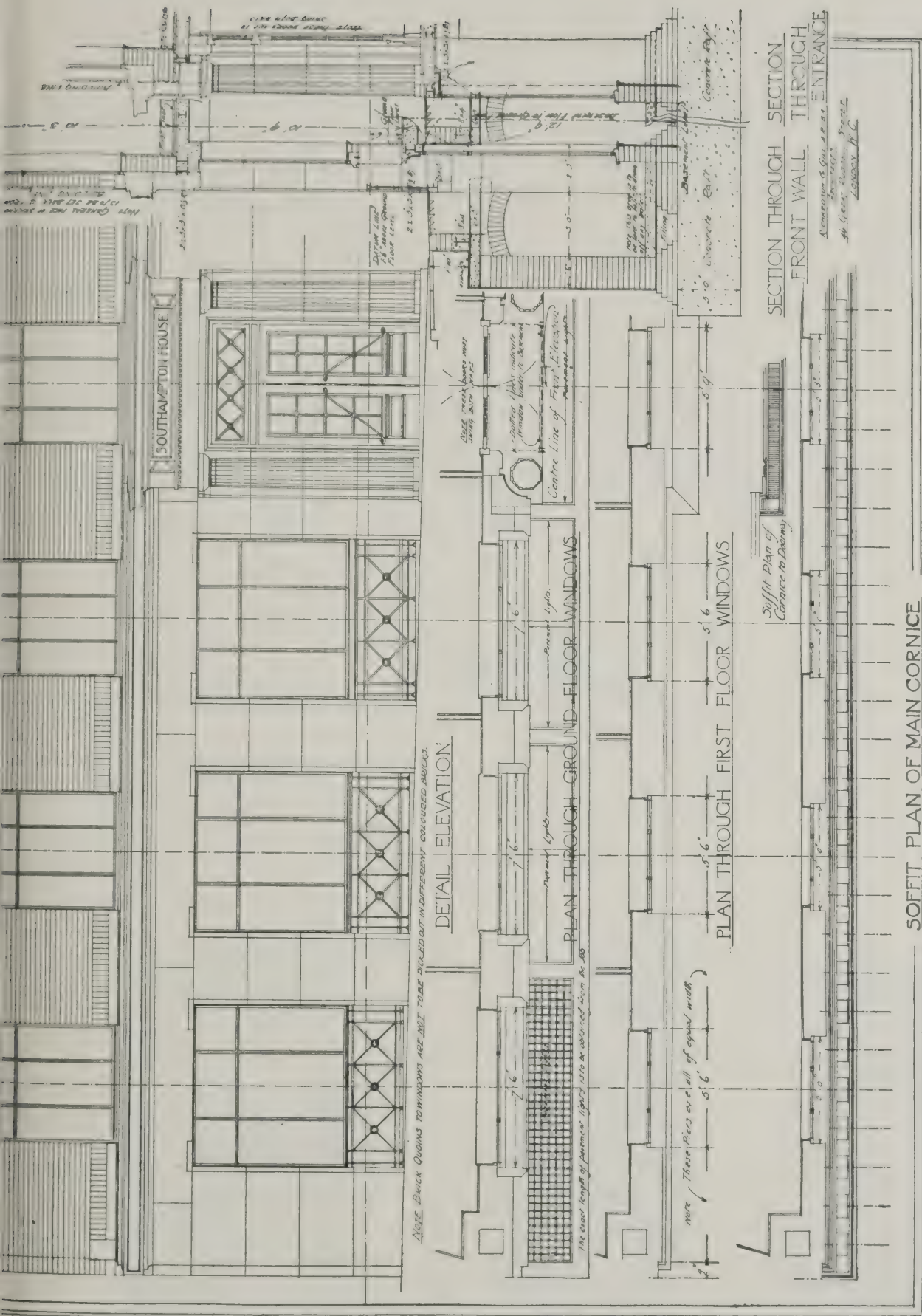


*Photo: H. A. King.*

STAFFORD HOUSE, LONDON: VIEW OF STAIRCASE HALL, FROM LANDING.  
(See page 564.)







RICHARDSON AND GILL, ARCHITECTS.

WORKING DRAWINGS BY WELL-KNOWN ARCHITECTS—XXVI.

(See page 564.)



## MODEL ANSWERS TO R.I.B.A. EXAMINATION QUESTIONS.

## INTERMEDIATE EXAMINATION.

BY G. E. FRANCIS.

HISTORICAL ARCHITECTURE—(d) ITALIAN, FRENCH, AND ENGLISH RENAISSANCE.

*Time allowed, four hours. Not more than four questions were to be attempted.**1. Compare and illustrate with free-hand sketches the difference in elevation between Florentine, Venetian, and Roman palaces; state the example given, approximate date, and name of architect in each case.*

*Answer.*—The characteristic features of Florentine palaces were their apparent strength and rugged simplicity. The heavy style of masonry, the absence of any pilaster treatment, the sparing use of carved detail, and the great crowning cornice (being proportioned to the height of the whole building) gave great simplicity to the style.

Windows are of what is known as the arcade type—i.e., a heavily rusticated round arch, under which is a round central column supporting a simple piece of tracery.

The example illustrated—the Palazzo Riccardi (A.D. 1430), by Michelozzo Michelozzi (A.D. 1396-1472), is typical.

Venetian Renaissance was largely influenced for some time by the preceding Gothic style. It is much lighter and more graceful than Florentine or Roman work, columns and pilasters being largely employed.

The windows are usually grouped together in the centre, leaving strong boundaries to the façades, which, owing to the canal banks, are nearly always straight.

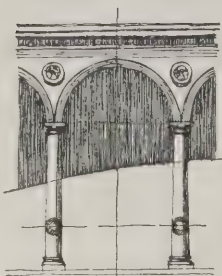
A cornice was used to mark each floor, while sometimes balconies were added over the ground floor.

The Palazzo Grimani (A.D. 1550), by Michele Sanmicheli (A.D. 1484-1559) is a good example.

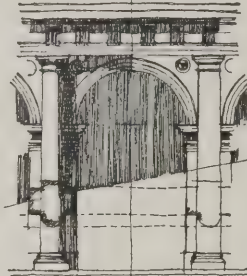
In Rome the Classic orders were largely used in the façades, and Roman methods were closely studied and carried out.

Although the palaces contain more detail than Florentine work, their size and simplicity produces a dignified effect.

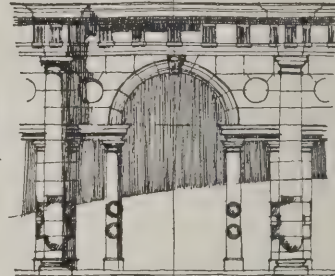
## ITALIAN RENAISSANCE ARCADES :



THE CANCELLERIA  
PALACE, ROME :  
ARCADING AROUND THE  
INTERNAL COURTYARD :

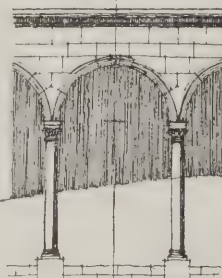


THE FARNESE  
PALACE, ROME :  
ARCADING AROUND THE  
INTERNAL COURTYARD :

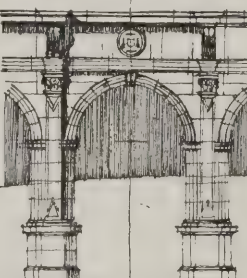


THE BASILICA  
PALLADIANA, VICENZA :  
GROUND FLOOR, ARCADE, ERECTED AROUND  
A GOTHIC TOWN HALL BY PALLADIO :

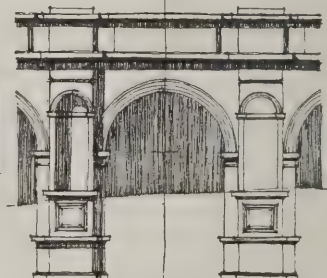
## FRENCH RENAISSANCE ARCADES :



HOUSE AT ORLEANS  
KNOWN AS  
"MAISON DE FRANCOIS I"  
ARCADING TO COURTYARD



SENS : ARCHBISHOP'S  
PALACE  
HENRY II WING.  
ARCADING TO COURTYARD



HOTEL DE CONDE :  
NOW DESTROYED.  
ARCADING TO COURTYARD.

Question 2.

In the later work the giant order was frequently used.

Windows were usually of the architrave type, in which mouldings enclose the window, and consoles on either side support a horizontal or pediment cornice.

The example illustrated is the Palazzo Massimi (A.D. 1531), by Baldassare Peruzzi (A.D. 1481-1536).

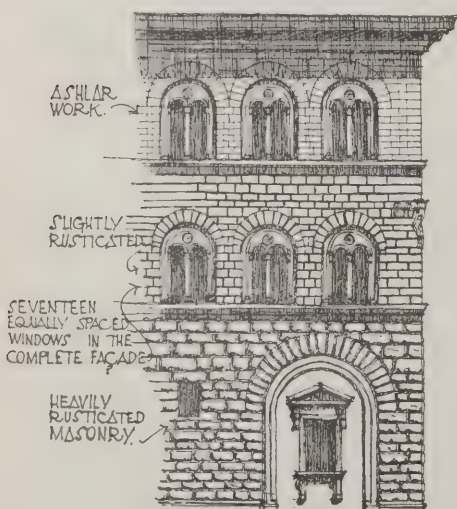
*2. Illustrate with sketches the various forms of the arcade used during the*

*period of the Renaissance in France and Italy, and compare generally with the Classical usage.*

*Answer.*—The sketches show Italian examples from the Cancellaria Palace, the Farnese Palace, and the Basilica at Vicenza, while the French examples are from the house at Orleans; the Archbishop's Palace, Sens; and the Hôtel de Condé, Paris.

Compared with the Classical usage,

## FLORENTINE :



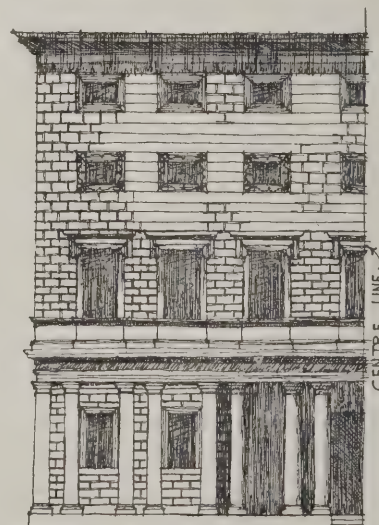
PALAZZO RICCARDI A.D. 1430.  
MICHELOZZO MICHELOZZI A.D. 1396?-1472.

## VENETIAN :



PALAZZO GRIMANI A.D. 1550.  
MICHELE SANMICHELI A.D. 1484-1559.

## ROMAN :



PALAZZO MASSIMI A.D. 1531  
BALDASSARE PERUZZI A.D. 1481-1536.

Question 1.



the chief instance of which is the Colosseum, Rome, the following points are noticeable:—

Renaissance arcades usually occupy the ground storey only (that at Vicenza being an exception), while they are most frequently found round interior courtyards.

In the Colosseum they occupy three storeys, and encircle the building in apparently countless numbers.

A very near approach to the general treatment of the Colosseum arcade is that of the Farnese Palace.

The earlier forms in both countries are very simple, the arches springing direct from the capital, while in the later periods they were much amplified.

In France, pedestals were largely used, a complete return to Classical details not being accomplished until a late date.

3. *Contrast, by sketches and large-size details, an important panelled room of the Elizabethan period (c. 1600), and of the Georgian period (c. 1725).*

*Answer.*—The general wall panelling from the main rooms of Hardwick Hall are illustrated for the Elizabethan period. For the Georgian work the chapel at Hampton Court Palace, by Sir Christopher Wren, is illustrated.

Building operations were started here in A.D. 1689, but the internal decorations were not completed until after the beginning of the next century.

Grinling Gibbons executed the carving in the frieze architecture of the cornice.

(To be concluded.)

## COMPETITIONS.

### *Proposed New School, Sale, Cheshire.*

In this competition, Mr. H. Beswick, the County Architect for Cheshire, has made the following selection: 1, Mr. P. C. Hoy, Manchester; 2, Mr. F. Q. Farmer, Stalybridge and Coventry; 3, Mr. P. D. Lodge, Manchester.

### LIST OF COMPETITIONS OPEN.

MAY 31.—LAY-OUT OF PARK, BACUP.—The Corporation invite designs for laying out the Moorlands and Stubbylee Estates as a public park. Premiums £40, £20, and four of £10. Summary of conditions in our issue for April 16th.

MAY 31.—"IDEAL HOMES" EXHIBITION.—COTTAGES AND BUNGALOWS.—Designs are invited for (1) A workman's detached cottage; (2) a pair of workmen's semi-detached cottages; and (3) a bungalow for four single persons. The prize of £50 will be given in each case. Assessor, Mr. Leonard Stokes, F.R.I.B.A. Summary of conditions in our issue for February 12th.

JUNE 2.—STREET IMPROVEMENT SCHEME, BLACKBURN.—The Corporation invite designs for street improvement scheme for Blackburn. Premiums £100, £50, and £25. Assessor, Professor Adshead, F.R.I.B.A. Conditions (of which a summary was given in our issue for April 23rd) from Town Clerk, Municipal Offices, Blackburn.

JUNE 7.—HOSTEL FOR MALE STUDENTS, EXETER.—Mr. Edwin Cooper, F.R.I.B.A., is assessor. Particulars (one guinea, returnable), H. Lloyd Parry, Town Clerk, Exeter. Summary in our issue for April 2nd, and plan of site in the issue for April 9th.

JUNE 14.—BATHS, NEWCASTLE.—The Corporation invite designs for baths at Benwell, Walker, and Heaton. Assessor, Mr. Herbert W. Wills, F.R.I.B.A. Conditions, with site plans, obtainable (postal order 1s.) from A. W. Oliver, Town Hall,



A NEW ESTATE AT SHEFFIELD, LAID OUT BY GIBBS, FLOCKTON, AND TEATHER.

Newcastle-on-Tyne. Summary in our issue for April 23rd.

JUNE 14.—MUNICIPAL BUILDINGS, DEVONPORT.—The Corporation invite designs for municipal buildings and a guildhall. Premiums £350, £150, and £100. Assessor, Mr. Ernest Newton, A.R.A., F.R.I.B.A. Conditions (£2 2s., returnable) from R. J. Fittall, Town Clerk, Municipal Offices, Devonport, to whom designs are to be sent. Summary and plan of site in our issue for March 12th.

JUNE 19.—LAYING OUT ESTATE, NEWCASTLE.—Corporation invite designs for laying out a portion of their Walker Estate. Premiums £50, £30, £20. Particulars (one guinea, returnable), A. W. Oliver, Town Clerk, Newcastle-on-Tyne. Summary in our issue for April 16th.

JUNE 24.—SANATORIUM, FAZAKERLEY.—Corporation of Liverpool invite designs for a sanatorium to be erected at Fazakerley, and to contain 250 beds. Premiums 150, 100, and 50 guineas. Particulars (two guineas, returnable), Edward R. Pickmere, Town Clerk, Municipal Offices, Liverpool.

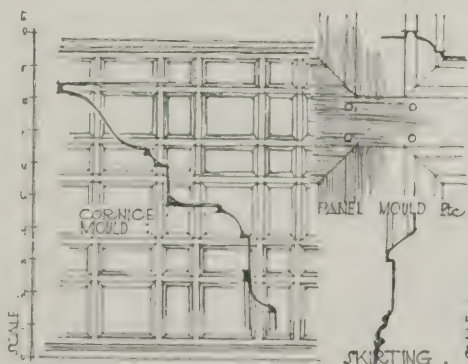
JULY 1.—ROYAL PALACE AND LAW COURTS, SOFIA.—Particulars, Commercial Intelligence Branch, Board of Trade, Basinghall Street, E.C.

SEPTEMBER 1.—TOWN PLANNING, HIGH WYCOMBE.—Schemes for the town planning of the borough are invited by the Borough Council. Premiums, £25, £10, and £5. Particulars, T. J. Rushbrooke, Borough Surveyor, High Wycombe.

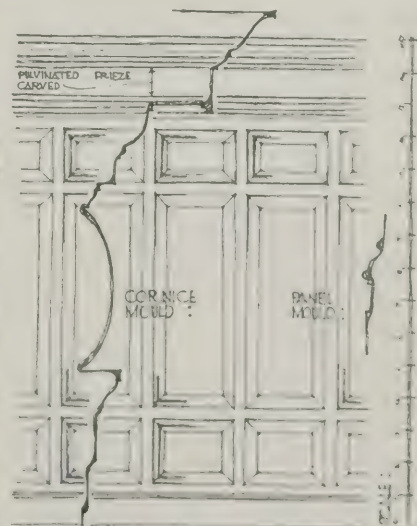
### A MODERN ESTATE.

We reproduce on this page the plan of an estate at Sandygate, Sheffield, which is to be laid out on modern lines under the direction of Messrs. Gibbs, Flockton, and Teather, of Sheffield. The estate, which comprises about 14½ acres, has a long frontage to the Redmires Road, and adjoins the Hallamshire Golf Course. It is to be laid out as a park, with a carriage drive, bordered by grass and trees, a large central part reserved for croquet lawn and tennis court, and the houses placed in échelon, so that each will have a view of the open space and the golf course beyond. It is proposed to make each plot not less than half an acre, and to erect houses costing not less than £900 each, exclusive of fences and lay-out of ground, and of not less gross rental value than £60 per annum.

### R.I.B.A. INTERMEDIATE EXAMINATION, QUESTION 3.



PANELLING GENERALLY FROM HARDWICK HALL c. 1600.



PANELLING FROM THE CHAPEL HAMPTON COURT PALACE c. 1725







## LEADLESS PAINTS: LEAD AND ZINC PIGMENTS COMPARED.

BY R. CLAUDE BUSSELL.

AT the usual quarterly meeting of the London Association of Master Decorators, which was held at the Holborn Restaurant, in accordance with an arrangement which had been made at a previous meeting, the members of the Paint and Varnish Society were invited, and there were nearly 100 gentlemen present to listen to the lecture on "Leadless Paints—Lead and Zinc Pigments Compared," by Mr. R. Claude Bussell. The lecture was illustrated with a large number of boards which had been specially prepared for the purpose by Mr. C. F. Oliver.

By leadless paints it is generally understood that the paint is to be one in which white-lead takes no place, for certainly lead itself will never be entirely abolished from paints. Lead is indeed an integral constituent of several valuable white zinc pigments; it appears in some form or other in many driers and in red lead, orange lead, the chromes, and Brunswick greens; so that on the whole, leadless paint is about as Utopian in its conception as "non-explosive gunpowder."

*Confusing Formula.*

Everyone who has read recipes and formulae for paints must have been struck by the unnecessary confusion that results through lack of uniformity in the manner in which they are presented. Who at first glance would realise, for instance, that the figures for making 7 lb. white lead paint third coat, *i.e.*, 6 lb. white lead, 3 gills raw linseed oil,  $\frac{1}{2}$  gill American turpentine, 4 oz. driers, would produce a paint for all practical purposes identical with that using 1 cwt. white lead,  $1\frac{3}{4}$  gallons raw linseed oil,  $2\frac{1}{2}$  pints American turpentine,  $4\frac{3}{4}$  lb. patent driers. The task of such a comparison calls for a mathematical effort which most of us would shun, and as a consequence no thorough grasp of the subject can ensue. If we persist, however, we are met with a further difficulty in comparing one ingredient with another, and after vainly trying to work out how many gills there are in one hundredweight of white lead we realise that in view of the varying specific gravity of our different ingredients and the impracticability of measuring solid materials by volume, the standard of weight must be adopted throughout for liquids and solids. Examples of the composition of paints, made in accordance with proportions furnished by Mr. Anderson, president of the London Association of Master Decorators, and tabulated for circulation at the meeting, were therefore worked out to a uniform percentage scale, taking the dry colour as the basis of calculation, and affixing to it the value of 100 parts by weight. Anyone wishing to perform similar experiments for himself, may now take any unit he chooses, whether it be gram, ounce, pound, stone, or hundredweight, or any multiple or portion thereof, the resulting paints will be the same. It may be objected that the addition of driers, tinting materials, or other compound substances, especially in larger proportions, will disturb the relative balance of dry and liquid ingredients, but with the possible exception of some flat paints, the slight variation may in a general way be disregarded.

*Colour in Linseed Oil.*

Whatever may be the general properties of zinc oxide and lithopone as paint

materials, it is a curious fact that both are affected by the colouring matter present in raw linseed oil to a more pronounced degree than white lead. There are, however, various methods of treating raw linseed oil by which this yellow colour may be modified, and although the difference in the oil itself after treatment is not striking, yet zinc-oxide paint when mixed with refined linseed oil is of infinitely better colour than when raw linseed oil is used. The process of refining raw linseed oil also renders it less viscous, and the decorator who uses refined linseed oil in making his zinc-oxide paints will find that they are altogether more satisfactory to him, and that they will dry quicker.

The grinding of zinc-oxide with oil to a stiff paste is in itself a proceeding of supreme importance, requiring a considerable amount of technical experience. The physical properties of dry zinc-oxide in relation to oil are peculiar; these two substances do not go together at all readily, as anyone will agree who has tried to mix them with the aid of a pestle and mortar. Zinc-oxide differs from most other pigments in that stiff paste can be made of it with widely divergent proportions of oil. In illustration of this point, there was a specimen of zinc-oxide ground in 20 per cent. refined linseed oil; dry pigment was then added to the same charge of oil until the proportion of oil became 12 per cent. and ultimately 8 per cent.—a specimen of ordinary white lead was available for comparison. Thus it will be seen that we have three kinds of stiff paste consisting of zinc-oxide and refined linseed oil only, in the first of which the oil content is two and a half times as great as the last. This specimen of zinc-oxide ground in 8 per cent. only of oil approaches white lead in appearance, but so much power and time is required to bring about the mixture that it is not generally obtainable.

*An Important Point.*

The subject of the oil content in relation to the zinc-white pigments is a very important one, and is probably responsible for most of the misunderstanding that exists in decorators' minds as to the general properties of zinc paints. White lead, as placed on the market, is invariably ground in oil to a proportion of about 8 per cent., so that no matter whose make may be purchased, the user obtains a substance of recognised consistency, with which he becomes familiar and on which he accordingly bases his calculations. A very different state of affairs prevails, however, with zinc oxide, and it is quite easy to realise that the behaviour of zinc oxide paint ground in 20 per cent. oil bought from one firm will be extraordinarily different from that ground in, say, 10 per cent. bought from another, even though the dry zinc oxide used by each manufacturer be identical.

It is not to be expected that human dexterity can achieve such perfection as to ensure an identical quantity of paint being placed on a given surface at each operation, nevertheless it is astonishing how concordant the results [of the practical demonstrations made for the occasion by Mr. C. F. Oliver] have been, and it is from the average of all the experiments performed with each paint that its approximate covering power has been stated, namely, white lead paint priming, 400 sq.

yd. per cwt.; white lead paint, second coat, 390 sq. yd. per cwt.; white lead paint, third coat, 500 sq. yd. per cwt.; white lead paint flatting, 500 sq. yd. per cwt.; these figures relating, of course, to a plain surface only.

*Zinc Oxide Paints.*

We will pass to the zinc oxide paints. It will be remembered that the stiff colour employed is compounded in the proportions of: Zinc oxide 100 parts, to refined linseed oil 12 parts; consequently, in order that the finished paint may compare exactly to a similar one made from white lead, it is necessary that 4 per cent. oil should be added in the form of thinners. While the priming, second coat, and third coat in the resulting liquid paints seem much thicker than the white lead paints, though they are stout, they are not so stiff as entirely to preclude their being spread under the brush. It will be noticed that the weight of one gallon (about 27 lb.) is only a little less than that of white lead, due presumably to the lower specific gravity of the dry colour. After consultation with Mr. Oliver, the three oil colours were reduced to the extent noted, *i.e.*, zinc oxide priming thinned with 4 per cent. oil; zinc oxide second coat thinned with 4 per cent. turpentine; zinc oxide third coat thinned with 2 per cent. turpentine and 8 per cent. oil. It has not been necessary further to dilute the flattening, in which, however, it must be noted that linseed oil is present to the extent of 1 per cent. (10 per cent. of the total oil) in excess of that in the white lead flattening due to the higher per cent. in which the zinc oxide is ground. It is interesting to observe that flattings made from white lead, zinc oxide, and lithopone, are all very similar in consistency and covering power, thus demonstrating that all such unfamiliar features as the use of zinc oxide and lithopone paints may present to the decorator, must be looked for mainly in the direction of the oil constituent.

*Lithopone Paints.*

In paints whose colour base is lithopone, a compound of zinc sulphide and precipitated barium sulphate, the priming, second coat, and third coat, averaging some 24 lb. per gallon, were more bulky than either the white lead or zinc oxide paints, but in this state they were not usable, considerable further dilution being necessary to bring them to a consistency approximating to that of our white-lead standards. The extent of this further addition is lithopone paint priming, 7 per cent. oil and 1 per cent. turpentine; second coat, 4 per cent. turpentine; third coat, 14 per cent. oil and 6 per cent. turpentine. While this per cent. relates to the dry pigment only, it implies a much greater relation to the liquid originally added for thinning; thus the 7 per cent. added oil in the priming represents a quantity half as much again, and the 14 per cent. extra oil in the third coat means that the added oil has been exactly doubled. Attention may well be directed also to the great reduction in weight per gallon, consequent upon the increased dilution.

While the covering power of lithopone paints compares favourably with those of either white lead or zinc oxide, it must in fairness be stated that there is more



variation in the various trials from which the average has been compiled than in either of the other two—possibly due to the more gelatinous nature of the paint.

By covering power is meant spreading value, *i.e.*, the average area covered by a given quantity. This steadily increases *pari passu* with the addition of liquid; thus one gallon lithopone paint third coat with a total liquid constituent of 46 per cent., according to our experiments, goes some 40 per cent. further than white lead third coat, whose total liquid constituent is only 26½ per cent. This is a matter of the greatest interest, and worthy of the attention of all interested in paint, especially when considered in conjunction with obscuring properties.

#### Zinc Oxide Paints.

Given a stiff zinc white paint, approximating in character to white lead, a decorator or painter can prepare paints in precisely the same manner as he has been accustomed to with white lead. For zinc oxide his pigment may be practically lead-free, or may contain a few per cent. of lead in combination; he must, however, be satisfied that the purity of tone is up to standard. Every brand of zinc oxide varies from its fellows to some extent in the intensity of its whiteness as well as in its physical properties, but so does white lead. Some zinc-oxides contain as much as 8 per cent. of lead, but a high percentage of lead usually gives the colour a brownish cast which renders it unsuitable for pure white. On the other hand, such oxides work exceedingly well, and moreover have good drying properties. They should find a ready use for stone colour and tinted whites, especially as their low price is an attraction.

Though the use of refined linseed oil has been recommended, it must by no means be assumed that raw linseed oil must of necessity be tabooed. A paint identical in its proportions to the third coat zinc-oxide, raw linseed oil having been substituted for the refined variety, was slightly more gelatinous in character, and consequently did not brush out so well, although an addition of oil will effect an improvement in this respect. It does not look a good colour in the tin when compared with the others, but, after application, it will be found to bleach out quite as white as if refined linseed oil had been used; in this respect the few extra pence charged for refined linseed oil is an extravagance. Unfortunately zinc-oxide paint made with raw linseed oil does not dry so readily as that in which the refined oil appears, the specimen under consideration requiring thirty-six hours to dry as against twelve hours averaged by the other. A suitable adjustment of the driers might effect an improvement.

#### Patent Driers.

Patent driers are to be obtained suitable for zinc pigments, so that there is no imperative necessity for the user to adopt a terebine or any fancy form of driers unless he so chooses.

Before adopting any particular drier for general use, there are two undesirable features which should be looked out for; the first is that of colour, for any drier that induces a permanent discoloration of the white paint after application, should be rejected; the second is that of chemical action, since some driers are apt to induce a curdling or "setting up" in the paint, rendering it quite gelatinous and incapable of being properly applied. Each decorator should conduct adequate experiments with the drier he proposes to adopt, and, when

he has discovered a satisfactory product, he should stick to it.

It is somewhat of an irony that among the most valuable ingredients in the preparation of driers for zinc paints, the lead salts take a prominent place. The painter, therefore, who wishes his paints to be leadless beyond question, will have to examine his driers as well. In my experience white paints which contain even a moderate percentage of added lead salts are more durable than those in which no lead salts make their appearance.

#### Exposure and Durability.

Unfortunately, most lithopones, as at present made, are not suited for outside work, owing to the fact that the painted surface rapidly becomes chalky, and powders off. In the country, especially in exposed positions, and when subjected to the action of sea air, white lead also develops a similar tendency after a time. Zinc-oxide paints show a marked superiority when used under these conditions, though even they fall victims under the influence of time, and ultimately undergo disintegration, the common end of all paints.

Durability and exposure tests in London are not very conclusive, since paints of every description rapidly become coated with a sturdy covering of grime which reduces white lead and zinc-oxide to a dead level, at one and the same time spoiling the surface and yet largely protecting it from further destruction. So that all that test fences in London can do is to point out which paints are too hopelessly bad. After all, chalking and general disintegration is more a matter of the vehicle than the pigment in most cases, and so long as the decorator keeps to genuine linseed oil, raw or refined, he will not go far wrong.

#### Spreading Value.

The subject of spreading value is a most important one, for, after all, this is the basis of the whole economic question. Taking the average of all four coats of white lead, zinc-oxide, and lithopone respectively, it may roughly be said that, using equal weights of the respective paints, work may be executed to the extent at least of 22½ per cent. more in the case of zinc oxide, and 31 per cent. more in the case of lithopone. This means that, other things being equal, so long as zinc-oxide paints, in a general way, do not cost over 22½ per cent., and lithopone paints over 31 per cent. more than similar white lead paints, the decorator will not be out of pocket by using them in preference to white-lead. Thus at the present average price of white lead, linseed oil, and American turpentine, a paint made from zinc-oxide ground in oil, at the cost of 40s. per cwt., can compete.

#### Reducing Media.

Stiff zinc-oxide, or lithopone, are as easy to reduce to a liquid paint as white lead, and it will be found that if excess of thinners be added to each, the two former will make a more presentable paint than the latter. It should be noted that a small quantity of turpentine is more effective in promoting fluidity in either of the zinc paints than a comparatively large portion of oil. I would tender one word of advice to users of zinc-oxide paint. Beware of water.

If only the zinc pigment champions could be brought to realise that really quite good paints can be made with white lead, and if, in their turn, the white-lead partizans would be more tolerant, the interests of the decorator, paint manufacturer, and, not least, the property owner, would surely be best served.

#### THE ATELIER QUESTION.\*

In France there is no *question* concerning ateliers, but in England lately there seems to have been some misunderstanding owing to the timely good work of several well-intentioned and enthusiastic patriots belonging to our profession who deem that one of the finest institutions for the progress of our art would be the introduction into England of a similar education for architectural composition to that obtainable in France owing to the existence of the well-organised system of l'Ecole des Beaux-Arts.

All the principal architectural ateliers in Paris are in connection with the Ecole des Beaux-Arts, and it is this central body or National School of Fine Arts that is, generally speaking, responsible for all the work done in the ateliers.

An architectural atelier in Paris in connection with the Ecole is of a two-fold nature—1. The preparatory atelier, where projects are set by the patron or professor for the students to work out together as practice for the admission competition into the Ecole; 2. The atelier for those students who are received into the Ecole, and who render in the atelier the projects set, not by the patron or professor of the atelier, but by the professor of theory of architecture of the Ecole.

The preparatory ateliers vary considerably. In some the patron visits for an hour once or twice a week; in others, the patron is there the whole of every afternoon. In these ateliers students of 15 or 16, to 27 or 28, and sometimes 29 years of age are working together and helping each other. Some are learning their orders, some learning to cast shadows, and others doing small projects similar to those generally set at the *concours d'admission*; but all are working in the same atelier, and, owing to the accepted *camaraderie*, a young fellow just starting his orders can ask for and may expect to get friendly assistance from any of the other comrades who may be able to help him. The atelier in this way gives a great deal of education irrespective of the patron.

The atelier is the seat of the students, and is run by themselves. The patron does not generally occupy himself with anything but the gentle criticism of the work done. In the ateliers for students received into the Ecole the age limit for the Ecole is 30. No man can participate in any of the advantages of the Ecole, the Grand Prix de Rome included, after thirty years of age. In these ateliers they render or draw out for presentation the sketch for the project which they have done at the Ecole *en loge*, that is, in a separate little box where each man is supposed to work entirely alone, and this sketch or *esquisse* is, as a rule, done within twelve hours, and constitutes the student's idea for that particular architectural problem or project. He leaves a copy of the *esquisse en loge*, and takes a copy to the atelier which he studies and works out by the aid of the whole atelier with the patron at the head; but he has to keep to his original idea as expressed in his sketch left *en loge*, and for this reason the patron has to help the student to develop his idea and not what would be the idea of the patron. From this it will be easy to see that as the student sees all the other students' solutions, the strongest atelier will offer him the best education, which depends more on the strength of the student than on the strength of the patron.

The patron is necessarily a big factor, but his strength is in his power to enable

\* Extracts from a communication from Mr. H. Bartle Cox, A.R.I.B.A. (Atelier Laloux, Paris), read at a meeting of the Guild of Architects' Assistants.



the student to realise himself. When the projects are finished, they are all exhibited in the same hall at the École, so that comparisons between ateliers can be made, and thereby a healthy emulation between ateliers is kept up, a keen newcomer naturally seeking the strongest atelier.

As to the establishment in England of the atelier system, I can only give my opinion, which I think will be taken as serious when it is considered that I gave up a good post as an assistant in order to study in Paris, not being satisfied with the state of affairs in England. There is in England no concerted action, no national training, no central authority.

In France it is otherwise. I feel that the École des Beaux-Arts is so universally acknowledged to offer the best training obtainable in the world that it is unnecessary for me to sing its praises. The fact of so many foreigners coming here and not going for the same purpose to England is sufficient proof of the French superiority in this direction.

Admission into the École takes place twice a year, when 45 Frenchmen and 17 foreigners are received, so that in 10 years' time 340 foreigners have gone through the École. They naturally include some Belgians and Swiss, but the bulk are Americans or Canadians, with a sprinkling of Russians, Turks, Greeks, Bohemians, Egyptians, etc., but very few Germans, Italians, or English. Besides those received into the École, perhaps four or five times this number of foreigners are studying here who fail to get into the École, or who have no intention of doing so.

Practically the whole of the American system of architectural education is based directly upon the French, and so I feel that it is the system to establish in England.

I am not at all interested in a national style. I feel that such ideas are archaic;

but I am interested in a National training for English architects. The principles of architectural composition are international, and there is a tendency over the whole world towards a universal style, modified, however, by national differences in detail.

It is the hope of the Beaux-Arts committee to see established in England a national school of fine arts, and the atelier of Wells Mews is merely the beginning of greater things.

## A BATH CITY IMPROVEMENT SCHEME.

About a year ago the Radium Development Syndicate placed before the Bath Corporation a scheme for the development of the Baths, the basis of the proposals being that the lessees should expend not less than £250,000 upon the erection and equipment of a new suite of baths and a new hotel, and upon the general development of the undertaking, the Corporation obtaining all necessary powers and receiving by way of rent the amount of interest and sinking fund upon existing loans.

A sub-committee promptly set to work to consider the proposals, and their preliminary report set out each clause of the proposals, giving the result of discussions which had taken place between the sub-committee and representatives of the Syndicate. At a subsequent meeting of the Council the report was adopted in its entirety, with the recommendations of the committee, the chief of which was that the Radium Syndicate should be informed that the Council were prepared to enter into an arrangement for leasing the Baths and to apply for the necessary powers to proceed.

On October 24th of last year, however, the sub-committee were informed that the principals of the Syndicate had definitely decided not to proceed with the matter.

On February 22nd, 1913, members of the sub-committee were invited to meet representatives of the Syndicate, when certain sketch plans were informally submitted.

After full consideration of the whole position, the sub-committee now report that they accept the position that the Syndicate are not prepared to go forward with the proposals originally submitted to the Corporation. They much regret that circumstances should have prevented the matter from developing as originally anticipated, and they think it only fair to the representatives of the Syndicate to state that the sub-committee are satisfied that the proposals of the Syndicate were submitted with full earnestness and with a real belief that they would lead to a satisfactory conclusion.

With regard to any alternative proposal which may yet be submitted by the Syndicate, the sub-committee feel that they would require a fresh authority to enter into a different set of negotiations. Any such proposals should, if they come forward, be received and considered quite apart from the present negotiations, and be dealt with entirely upon their own merits.

It is obvious that the scheme may yet materialise, and in view of this fact—or, indeed, in any case—it is interesting to see the design prepared at the request of the Syndicate by Messrs. John Belcher, R.A., and J. J. Joass, F.R.I.B.A., whose general view of the proposed new spa, hotel, baths, and gardens is here reproduced from a photograph courteously lent by the proprietors of the "Bath Herald."



THE RADIIUM SYNDICATE'S BATH DEVELOPMENT SCHEME. JOHN BELCHER, R.A., AND J. J. JOASS, F.R.I.B.A., ARCHITECTS.



## TRADE AND CRAFT.

### *Pedra Onyx: A Translucent Marble.*

Messrs. Walton, Gooddy, and Cripps, Ltd., Blenheim Wharf, Eagle Wharf Road, N., sole agents for the United Kingdom for Pedra Onyx, have forwarded for notice a handsome booklet giving an interesting account of that material. Onyx, or, more properly, onyx marble, or travertine, is a calcareous or limestone composition, of spring formation. It is found in arroyos or canyons, and in valleys that were once the beds of spasmodic streams. There are not more than a hundred known onyx quarries, while fewer than half a dozen are producing onyx in merchantable sizes and quantities. The largest and most valuable deposits are those controlled by the New Pedra Onyx Company, in Lower California, about 300 miles down the peninsula from San Diego, and about fifty-five miles inland from the Pacific Ocean. Here the blocks are quarried in unusually large sizes, the "quarry run" ranging from 18 in. to 6 ft. in thickness, from 24 in. to 42 in. in width, and from 2 ft. to 10 ft. or 12 ft., while special quarryings can be made up to 14 ft.; the supply from the new Pedra quarries, which are more than 5,000 acres in extent, being virtually limitless. Professor George W. Merrill, the eminent geologist, believes that iron, in different states of combination, together with manganese, gives the colour variation in the onyx; the beautiful banding, or waving lines, which are a peculiar feature of this material, representing the lines of deposition in much the same manner as the scales of a shell or the lines of a tree trunk represent the different stages of its growth or development. The colouring ranges from virgin white through the most exquisite tints of green, rose, yellow, brown, and a little blue, appearing at

times in delicate veins or lines, again in broad bands, in random flecks, or in cloud-like masses of rich colour. Obviously, Pedra onyx is a singularly beautiful decorative stone. Unlike other delicate marbles, it is impervious to stains, and its close grain and great hardness make it susceptible to an enamel-like polish, which is permanently retained. One of its most remarkable characteristics is its translucency, which not only enhances its inherent beauty, but gives it a peculiar decorative value in the production of novel and beautiful lighting effects, realising, as an American writer observes in describing the new Spreckels Theatre at San Diego, an effect "unique in the arts of architecture and illumination," a myriad of small electric lights concealed in recesses behind the thin onyx panels of walls and ceiling giving the delicate tints of fairyland. In various theatres, banks, and other buildings Pedra onyx has been used with extraordinary decorative effect for colonnades, pilasters, staircases, panels, and ceilings, and is a material to which architects in this country will be glad to give attention. From the foregoing description it becomes obvious that, quite apart from the novel and beautiful effects of the extraordinary translucency of the thin panels, the purely decorative value of the material itself can hardly be overrated.

### *The Carboscope.*

A new instrument for the comparative measurement of smoke has recently been introduced by Messrs. B. J. Hall and Co., Ltd. This instrument, which is known as the "Carboscope," is capable of measuring (a) the apparent shade of smoke as seen issuing from a chimney-top, and (b) the relative density of such smoke as compared with a unit density chosen for the purpose.

The instrument takes the form of a

small telescope, having fixed in the optical system at a point which may be brought into the focus of both object-glass and eyepiece, a revolving eccentric disc containing a number of graduated smoked glasses arranged in cells around the centre. The glasses only fill half of each cell, so that by revolving the disc, as each cell with its glass is brought successively into the axis of the telescope, the smoke may be viewed through the open half of the cell and matched to the glass in the other half. The smoked glasses are numbered in the ratio of their thicknesses—e.g., glass numbered 20 is equivalent in transmission value to 20 unit thicknesses of the unit shade chosen. No. 40 is equivalent to 40 thicknesses, and so on.

The unit density is taken to be that of smoke which in a 20-ft. thick layer transmits 80 per cent. of the light falling on it. Or, since the smoked glass No. 20 represents 20 layers of unit thickness, and transmits 80 per cent. of light, unit density may also be defined as follows: Smoke, which in a layer or column of unit thickness, say 1 ft., matches a smoked glass of unit density or thickness. Thus, smoke of unit density in a layer  $N$  feet thick will match a glass of  $N$  units thick; and, generally, if  $D$  equals thickness of smoke column, and  $N$  equals number of unit thicknesses of smoked glass which match it in shade, the density will be equal to  $\frac{N}{D}$  units as above defined. This unit is an arbitrary one, and it is in these units that the instrument measures density, and thus enables the observer to compare chimneys of different diameter.

By measuring the weight of soot per cubic yard in smoke of unit density, the readings may be converted into weight of soot per yard cube of smoke, by simply multiplying the density as given by the instrument by the weight per yard cube of soot in smoke of unit density.



A BANK INTERIOR, SHOWING APPLICATION OF "PEDRARA" ONYX.



## NEWS ITEMS.

*Appointment.*

Mr. James Hembrow, architectural assistant to the Borough Engineer of Chelmsford, has been appointed town planning assistant to the Edmonton Urban District Council.

*Changes of Address.*

Messrs. McKim, Mead, and White, architects, New York, announce their removal to 101, Park Avenue, in that city.

Messrs. Woolgar and Roberts' Press Cutting Agency has removed to 169, Fleet Street, E.C.

*New Buildings at Torquay.*

The following new buildings are being erected at Torquay from designs by Mr. F. G. Moore, A.M.I.M.E., architect and surveyor: Works in Dumfries Street, Torquay; stables, coach-house, and warehouse in Torwood Street; house at Livermead.

*Theatre Plasterwork.*

Mr. Bertie Crewe has entrusted to Messrs. John Tanner and Sons, of London and Liverpool, the whole of the fibrous plaster and decoration work in connection with the reconstruction of the Palace Theatre of Varieties at Manchester. The motif of the work is entirely Greek in character.

*Royal Free Hospital (London) Extension.*

On the occasion of the laying of the foundation stone of the Royal Free Hospital Extension, by Princess Christian, last week, the architect (Mr. H. V. Ashley, of the firm of Ashley and Newman) and Mr. William Downs, the contractor, were formally presented to the Princess.

*Heating and Ventilating Engineering Studentships.*

Two heating studentships, tenable in the Faculty of Engineering of University College, London, each of the value of £50 a year, together with 11 guineas, being the amount of College Fees, are offered by the Institution of Heating and Ventilating Engineers. Applications should be made to the secretary, Mr. Walter W. Seton, M.A., University College, Gower Street, W.C.

*New Architectural Buildings, University College, London.*

Rapid progress is being made with the new building for the Architectural Department of the University of London, University College. The new building lies immediately to the west of the Slade School of Fine Art; to the east of it, between the new Institute of Chemistry and the Slade School, on the site of the old Gower Place, the new sculpture studios will be erected, while the Department of Engineering already forms the south portion of the new side of the quadrangle. Between it and the Engineering block, a building is to be erected for the Galton School of Eugenics. The architect of the building is Professor F. M. Simpson, F.R.I.B.A.

*The Rotherwas Panelling.*

It is stated that Mr. Charles Pratt, secretary of the Standard Oil Company, has purchased, for £70,000, the carved walnut oak panelling of Rotherwas House. The panelling is being placed in Mr. Pratt's country home, Glencovey, Long Island. This panelling, of some thirteen rooms from the historical country seat of the Bodenham family, near Hereford, dates for the most part back to Elizabethan times, and is believed to be the finest of its

kind. It includes an especially beautiful chimney-piece and overmantel from the old banqueting hall, and the high artistic quality of the whole of the carving suggests a skilled native craftsman, or men, working under Italian influence. The whole of the panelling appears to be in a perfect state of preservation.

*The New Middlesex Guildhall.*

The new Guildhall for the County of Middlesex, in Broad Sanctuary, Westminster, which has been built of Portland stone, in a Tudor-Gothic design, by Mr. J. S. Gibson, with whom was associated Mr. Wakelam, the County Engineer, has four storeys, and its main entrance is under a central tower, with a recessed archway leading into a large public waiting-room. The central tower, on which the builders are now putting the finishing touches, rises to a height of 110 ft., and is pierced with windows of delicate tracery, the short frontage facing the Abbey having a series of dormer windows. The style of architecture has given opportunity for the display of ornamentation on an expansive scale. The site of the new Guildhall has been occupied by public buildings since the time of the Norman Conquest. When excavations were being made for the present building, a mass of Kentish rag stone, hard cemented, was encountered, and it was shown that this solid mass constituted the foundation of a building known as St. Peter's Sanctuary. The contract price of the hall is £73,000. Room has been allowed for two courts for the Middlesex Sessions, and for a Council Chamber large enough to accommodate more than 100 members, besides the officials and the public.

## OBITUARY.

*Mr. H. M. Flagler.*

Mr. Henry Morrison Flagler, the railway builder and capitalist, who died last week at West Palm Beach, at the age of eighty-three, was a pioneer in the building of sumptuous American hotels. It was in 1885 that he turned his attention to the building of magnificent hotels and to making costly improvements in the amenities of the towns. The first of the series of great hotels for which he became so well known as the proprietor in America was the Ponce de Leon at St. Augustine; others followed on as lavish a scale, including the Alcazar and the Cordova at the same place, the Ormond on the Halifax River, the Royal Ponciana and the Breakers at Palm Beach, and the Royal Palm at Miami. In 1901 he opened on the Atlantic Beach, twenty-five miles from Jacksonville, a large hotel for summer visitors. He owned ten hotels in all, and these were served by 600 miles of railway, of which he obtained control. He was one of the founders, with Rockefeller and Andrews, of the Standard Oil Company.

*Mr. Edmund Lumley.*

Mr. Edmund Lumley, barrister, of the Middle Temple, who died on May 7th, at a nursing home, at the age of 74, was regarded as one who took rank amongst the first lawyers of the Temple. Educated at King's College, London, and subsequently at Trinity College, Cambridge, he took classical honours at the University so long ago as 1862. Called to the Bar at the Middle Temple on January 26th, 1865, he was joint author of the legal work which has long been known as "Lumley's Public Health." He was, until his death, Revising Barrister for Nottingham.

## R.I.B.A. PROBLEMS IN DESIGN.

The Board of Architectural Education of the Royal Institute of British Architects announce that the designs submitted by the following students who are qualifying for the Final Examination have been approved:

*Subject VII.: Design for a Village Inn.*

W. R. Davison.	James E. Marchinton.
B. Donaldson.	C. Medley.
A. E. Lowes.	

*Subject VIII.: Design for a Gatehouse to a College.*

P. J. Adams.†	A. E. Lowes.
G. Bennett.	J. Moore.
J. W. Bull.	A. Nisbet.
J. O. Cheadle.	E. B. Norris.
H. T. Cooksey.	A. J. Sparrow.
A. L. Freaker.†	J. O. Thompson.
W. W. Locke.†	W. C. Young.
R. M. Love.	

*Subject IX.: Design for Carriage Entrance to Hotel.*

F. A. Addey.†	J. E. Lutyens.†
C. O. Ap-Gruffydd.	J. MacGregor.†
H. Bagenal.†	H. L. MacMillan.
R. Brain.†	A. E. L. Martyn.
A. S. Burnett.†	H. C. Mason.*
E. R. F. Cole.*	B. Newbould.*
E. C. Davies.†	R. H. Philp.†
W. R. Davison.	C. J. Ripley.
H. Dicksee.†	A. R. Shipley.*
L. Foster.	A. E. Stott.*
J. C. Fowell.	H. J. Tebbutt.†
W. Friskin.	R. S. Wallace.†
W. Griffiths.*	R. A. Walter.†
H. W. Hallas.	B. N. Weeks.*
L. S. Henshall.*	F. Williamson.*
A. F. Hooper.†	R. S. Wilshire.†
A. F. Kaltenbach.	J. F. Wilson.

\* Students of the Liverpool University School of Architecture.

† Students of the Architectural Association School.

## LEGAL.

*Building Notice for a Simple Addition.*

At Greenwich Police Court on May 13th Mr. A. Symmons heard two summonses brought by Mr. Baxter Greig, District Surveyor for Deptford, against Mr. Edward Hawke, builder—(1) for neglecting to serve a building notice, and (2) for failing to comply with a notice of irregularity.—It appeared that Mr. Hawke had erected, at a house in Breakspears Road, Brockley, an extension built of wood and glass, the building, including a portico, being 5 ft. 11 in. by 11 ft.—The District Surveyor contended that this structure contravened the London Building Act, which demands incombustible materials.—For the defence it was urged that under the Act greenhouses attached to other buildings are exempt, and that the addition in question was really of the nature of a greenhouse. Alternatively it was contended that, if the Act applied at all, the structure was subject to Part VII., and was referable to Section 5 of the London Government Act, 1899, and was therefore entitled to licence from the local authority.—The summons for irregularity was adjourned for four weeks, in order that defendant might have an opportunity of satisfying the district surveyor's requirements. For the failure to serve a building notice, the magistrate fined defendant 10s., with £2 2s. costs.

## THE OLD HOUSES ON CLAPHAM COMMON.

Mr. Philip Norman, chairman of the Committee for the Survey of the Memorials of Greater London, and Mr. Percy W. Lovell, the secretary, have addressed the following letter to the Press:—

"The rumour that a site on the north side of Clapham Common is being considered for the new buildings of Westminster Hospital, and that its selection



would mean the disappearance of a delightful row of old brick houses, has given a shock to all lovers of Greater London. We trust that the hospital authorities will realise the irreparable injury which the loss of these houses would entail upon the neighbourhood, and that they will be persuaded to choose another site.

"Every day public opinion grows more and more in favour of the retention of buildings such as these, which combine exceptional beauty with something of historic interest. If, as we hope and believe, the authorities of Westminster Hospital decline to disturb them, we would appeal earnestly to the inhabitants of Clapham if possible to prevent their being again exposed to danger. In truth, they are a pecuniary as well as an æsthetic asset to an important district, preserving for it almost all that remains of its old amenity and charm."

## PROJECTED NEW WORKS.

### *Royal Agricultural College, Cirencester.*

It is proposed to add a new wing to this college, at a cost of £10,000.

### *Municipal Buildings, Stirling.*

Stirling Town Council have decided to proceed at once with the erection of new municipal buildings at the estimated cost of £19,500.

### *Extension of North Riding County Hall, Northallerton.*

It has been decided to extend the North Riding County Hall, Northallerton, at an estimated cost of £6,000.

### *Extension of Lincolnshire Asylum*

It has been decided to extend the Lincolnshire Asylum by the provision of additional accommodation for 160 patients, at an estimated cost of £24,000.

### *Library Extension, Dunfermline.*

The Public Libraries Committee of Dunfermline have finally approved of plans showing a scheme of improvement which involves the expenditure of a sum approaching £11,000, towards which Mr. Carnegie has undertaken to contribute £5,000. Mr. James Shearer is the architect.

### *Police Court, Swansea.*

Mr. A. G. Drury, C.E., Inspector of the Local Government Board, has heard an application by the Swansea Corporation for sanction to borrow £24,500 for the extension of the central police and fire brigade station and for the appropriation of the necessary land, and also for sanction to borrow £350 for the erection of a foreman's house at Park Llewelyn.

### *Projected New Buildings, Torquay.*

A large building scheme is being dealt with at Torquay, near the famous Babbacombe Downs, comprising a café, shops, villas, and cottages. An important road-widening has been arranged with the Torquay Corporation. The architect for this scheme is Mr. F. G. Moore, A.M.I.M.E., of Torquay, and the builders are Messrs. S. Blatchford and Sons, also of Torquay.

### *Workhouse Infirmary, Eastbourne.*

Mr. Brook Kitchin, Local Government Board architect, having objected to any additions being made to the existing infirmary and workhouse buildings at Eastbourne, and having suggested that the guardians should erect new buildings for infirmary purposes only, plans embodying these suggestions are to be prepared by Mr. Cooke, architect to the Board of Guardians.

### *East Sussex Hospital.*

The King Edward VII. memorial fund for East Sussex, which takes the form of the rebuilding of the East Sussex Hospital on a more suitable site, is nearing completion. The Hastings Corporation is acquiring the present building and site on the sea front at a cost of £15,000, and, with the aid of this sum, the total amount now available is approximately £40,000. It is estimated that the sum required to complete this memorial will be upwards of £50,000. Building operations will be commenced shortly.

### *Newport (Mon.) Railway Station.*

Proposed alterations to Newport Railway Station, which are estimated to cost £250,000, include extension of both platforms to 1,300 ft., enlarged booking offices, new goods offices, subways between the platforms, etc.

### *Engineering Laboratory, Oxford.*

A decree was passed by Convocation authorising the Curators of the University Chest to receive from the trustees of the Endowment Fund the sum of £6,000 for the building and equipment of a laboratory for the use of the Professor of Engineering Science on the Parks Nursery site in the Banbury Road.

### *St. Martin's-le-Grand.*

The Postmaster-General has decided that the widening of St. Martin's-le-Grand cannot be carried out by the surrender of land without payment in connection with the rebuilding of the old General Post Office. The matter has therefore been referred to the Office of Works for the consideration of figures. It is likely that the improvement desired by the Court of Common Council will cost about £200,000.

### *Garden City for Dock Labourers.*

In connection with the improvements which the Port of London Authority are to carry out at a cost of something like £15,000,000, it is believed that houses will have to be provided for about sixty thousand people. The Garden Cities and Town Planning Association are anxious that the housing shall conform to modern experience and ideals, and a scheme prepared on garden-city lines by Mr. Crow, architect, has been adopted by the association. The proposal includes playing fields, school buildings, and allotments, and the area affected embraces East and West Ham, Ilford, and Romford. The new proposed road from London to Tilbury, and the eastern avenue suggested by the Traffic Board, are shown in the scheme.

### *New Municipal Works.*

The Local Government Board are about to hold, or have recently held, inquiries into proposed expenditure by public bodies as follows: Water Supply.—Chelmsford Borough Council, £1,940 (May 23); Blaenavon Urban District Council, £14,940 (May 30). Sewerage, Drainage, and Sewage Disposal.—Beaconsfield Urban District Council, £13,500; Balby Urban District Council, £6,811; Cambridge Borough District Council, £6,100 (May 22); Huyton Urban District Council, £1,000 (May 23); Sheffield City Council, £20,019 (May 27); Marsden Urban District Council, £7,127 (May 28); Eccles Borough Council, £2,600; Bradford City Council, £10,000 (May 30). Street Improvements, Public Walks, etc.—Sheffield City Council, £15,171 (May 27); Knutsford Urban District Council, £5,000; Brixham Urban District Council, £2,750; Marsden Urban District Council, £1,124 (May 28); Colne Borough Council, £1,349;

Manchester City Council, £1,133; Plymouth Borough Council, £10,989 (May 29); Eccles Borough Council, £13,379 (May 30). Various.—Bootle Corporation, electric lighting, £3,750 (May 22); Tonbridge, county offices extension, £13,500; Chester Corporation, asylum, no amount stated (May 23); York Corporation, electricity works extension, £30,600; Hythe Borough Council, sea defence, £12,500; Hebden Bridge, electricity works extension, £3,250; Tiverton Borough Council, gas undertaking, £2,900 (May 27); Atherton Urban District Council, electric lighting, £5,500; Paignton Urban District Council, depot, £1,600; Pembroke Borough Council, engine, pump, and plant for pumping station, £1,600 (May 28); Manchester City Council, electricity undertaking, £75,000 (May 29); Blaenavon Urban District Council, cemetery, £2,000 (May 30).

## DEVON AND EXETER ARCHITECTURAL SOCIETY.

### *Journal of Proceedings.*

A portrait of the president for 1912-13, Mr. E. Coath Adams, M.S.A., forms the frontispiece to the booklet in which the 1912 proceedings of the Devon and Exeter Architectural Society are recorded. The names and addresses of the forty-six members, seventeen associate members, sixteen associates, and five honorary members are given, and a list of past presidents from 1890 to 1912 and a register of prize-men from 1896 to 1912 are included. The annual report for 1912 contains, among other interesting items, a note to the effect that during the past year a scale of charges for quantities has been carefully considered by a committee comprised of members of the council and delegates from the Three Towns Branch, who have drafted and approved a schedule of charges.

## SHEFFIELD UNIVERSITY DEPARTMENT OF APPLIED SCIENCE.

### *A New Building Trades' Course.*

From the University of Sheffield we have received a prospectus of a course of instruction particularly intended for students who are working with the object of becoming master builders or of occupying other important positions in building businesses. The course is a part-time one—six months at the University and six months at the works each year for three years. As building work is becoming more and more scientific, this combination of practical work and applied science training of a high standard should be exceedingly useful. Mr. W. S. Purchon, A.R.I.B.A., lecturer at the University, states that, so far as he is aware, this is the first course of the kind offered by a University, and it is hoped that it will not only be of service to those who take the course, but also that it will tend to raise the standard of education in building work generally.

### *An Architectural Tour in France.*

In connection with the Department a tour in France is being arranged. The party will leave Waterloo Station, London, on August 4th, under the guidance of the Rev. Dr. West, A.R.I.B.A., formerly a pupil of Viollet-le-Duc, and author of "Gothic Architecture in England and France," and will return on August 23rd. This vacation course is open to all who are interested in the study of architecture.



# THE ARCHITECTS' & BUILDERS' JOURNAL.

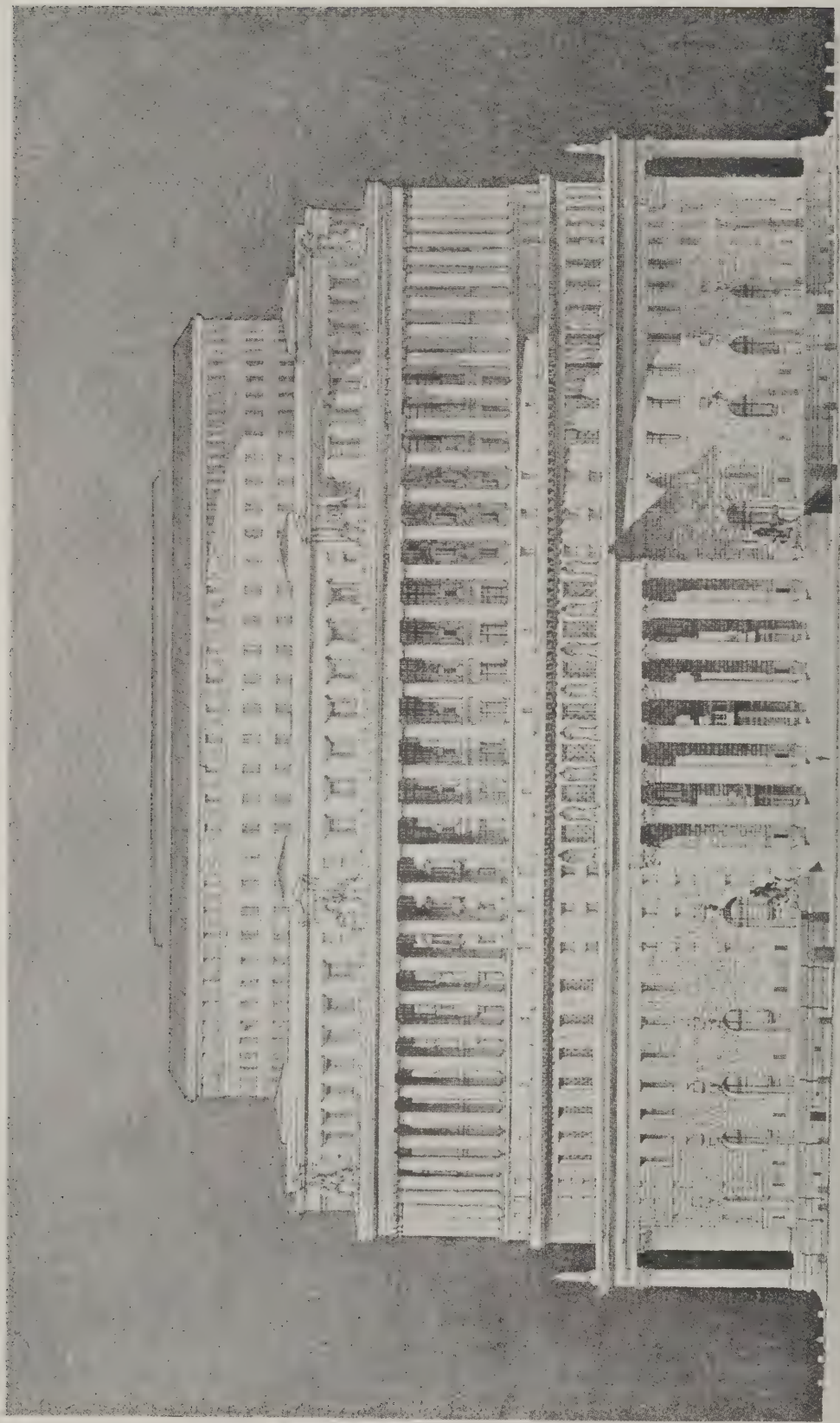
Wednesday, June 4, 1913.

Volume XXXVII. No. 960.

No. 36.



*(From Piranesi.)*



SELECTED DESIGN FOR NEW YORK COURT-HOUSE: SOUTH ELEVATION. GUY LOWELL, ARCHITECT.

(See next page.)



# THE ARCHITECTS' & BUILDERS' JOURNAL.

JUNE 4, 1913.

CAXTON HOUSE, WESTMINSTER.

VOLUME 37. No. 960.

## Modern Architecture.

THE powerful and arresting design we illustrate on the opposite page, which has recently won the competition for the New York Court House, together with Mr. Hastings's paper at the Institute, bring again very forcibly to our minds the extraordinary achievements of recent American architecture. We cannot blink the fact that not only are such designs as Mr. Guy Lowell's not made in this country, but that it is impossible at the present moment for us to conceive them. We may excuse ourselves by saying quite truly that the opportunities are lacking for work on this scale, that our towns possess no sites or characteristics suitable to monuments of such majestic simplicity, but at bottom we realise in making such excuses that we are only accusing ourselves. The deeper question is whether as a nation we have in our hearts the desire for such things, or if we admit the desire, whether we have the courage and imagination to conceive them. We talk of Empire, and we are said to possess one-fifth of the inhabitable globe, but what building have we made during the last hundred years which in any way reflects this Imperial position? Is there a single English monument built since we have possessed an Empire at all which its inhabitants have seized upon as a symbol? What modern building has touched their imagination? To Frenchmen all over the world the Paris Opera House is just such a symbol. It stands worthily for a great deal of what is best and most typical in their civilisation. It seems very possible that this Court House of Mr. Lowell's will take the same position for Americans. It appears to represent a people who have faith in themselves and their destiny. It is a conception of great power and directness. If the bickerings which even in America unfortunately follow all competitions prevent its erection it will be a calamity of national significance. No public building of modern times seems to us to epitomise so finely the best characteristics of the age—power, law, and order.

Mr. Hastings's eloquent address at the Institute, a report of which will be found on another page, shows clearly the logical position from which the best American architects view their work. It shows the concentration of effort and the agreement of opinion which make possible such buildings as Mr. Lowell's. The position as explained by Mr. Hastings may briefly be said to be a completely modern use of the traditional classical formulæ. American architects like Mr. Hastings are none the less artists because they are scholars too. Their art is deeply grafted in the parent stem of European architecture, but it is responsive in an extraordinary way to the needs and ideals of the present day. It is only very ignorant persons who still think that American buildings are full-size models of European examples. Rather, they are the natural offspring of these examples under a freer sky and conditioned by a more liberal purse.

Mr. Hastings pleads for a continuation of the work of our fathers and grandfathers. We need go no further back. The great Renaissance stream grew in

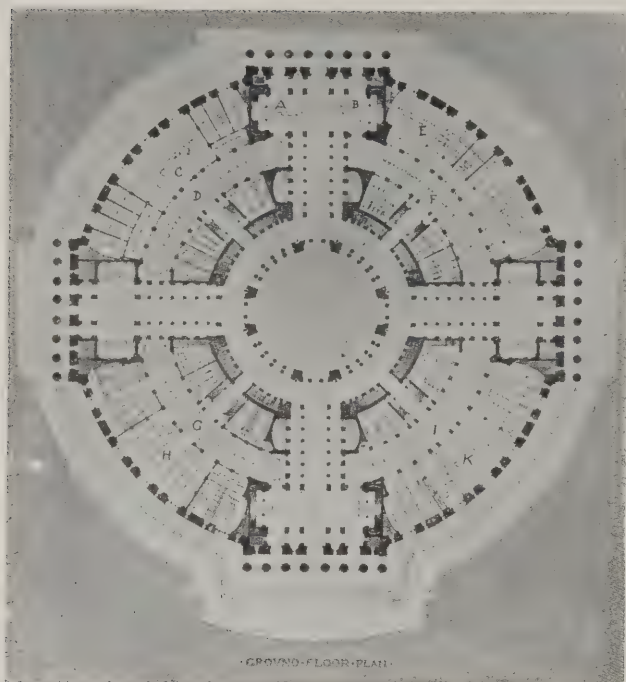
volume up to and including their time, receiving in the early part of the nineteenth century its last and finest accretion of power. With a knowledge of Greek detail to refine the strength of Roman architecture, which began towards the end of the eighteenth century and continued as an increasing and vitalising force up to the middle of the nineteenth century, the tradition restarted at the Renaissance achieved its greatest and most monumental work. That that work has been ignorantly called by Fergusson and others following him a work of revival, should blind no architect to its real merit. For the architecture of this period, as the architecture of any other period, must not be judged by its meanest products. For instance, it is not the journeyman Doric temples erected as Baptist chapels all over the country, but the monumental buildings of Cockerell, Elmes, Decimus Burton, and Alexander Thomson which should determine its character, and the character so found is anything but revivalist. Nothing could be more original than the compositions of these masters.

If one has any criticism at all to offer it is that Greek Thomson's work was too romantically original—the very reverse of the character that has been ascribed to it elsewhere. And if we turn to the corresponding French work we see at a glance that Duc's façade to the Palais de Justice in Paris, Labrousse's Library, Ginain's Ecole de Médecine, or the Musée Galliera, are anything but revivals of any past architecture. Their great characteristic is that they carry a stage further the realisation of the monumental ideal, which Wren and Vanbrugh in England, Gabriel and Mansart in France, struggled to achieve, and this realisation is obtained by the greater freedom of expression the more monumental art of Greece permits. The latest work of Messrs. McKim, Mead, and White shows the same tendency, the same use of Greek detail and Greek motifs.

There is, indeed, no innate antagonism between Greek and Roman architecture, or only sufficient antagonism to prevent sterility. American architects are proving every day that it is in a modern synthesis of both, brought about through a thoroughly Greek desire to give direct expression to modern needs, that modern architecture is being made. Each new piece of Greek detail, therefore, with which archæologists can supply us will be but an addition to our repertoire with which we can prove again the adaptability of the Greek spirit. The engineering architecture of Rome, designed to utilise the unskilled labour of the legionaries, required at every step a fresh infusion of Greek detail to prevent its articulation becoming debased. The further such architecture was from Greek influence the more debased it became, until in the remote provinces it merges for us into the barbarities of the Romanesque.

So to-day, to refuse to make use of the Greek spirit of refinement while paying tribute to the Roman spirit of strength is to deprive modern architecture of the finest part of the tradition on which it should be built. And





NEW YORK COURT-HOUSE.

to clear that tradition of all reproach it would be wise to drop entirely this misleading term "Greek Revival." "Neo Grec," the apparent alternative, is an unfortunate word, but it is free from the revival untruth. It would be as logical to try to belittle Mr. Lowell's great design by stigmatising it Roman Revival architecture as it is to apply the term Greek Revival to the monumental works of the French, English, and German architects who first enriched modern architecture with Greek motifs and detail.

The misuse of these terms, however, is but the dust of the battle of the styles which has not yet finally settled down. The battle itself has long since been fought and won, but sorrowfully we must admit the spoils of the victor are not to us. While we have been neglecting our towns, or, at best, pottering with garden suburbs, while our architects have been busied with satisfying the newly-acquired country tastes of our town-bred merchants, and in so doing have tried in turn all the immature styles, from Tudor to Georgian, America has quietly trained her best citizens and her best architects in a knowledge of European civilisation. She has aimed at the best, and has had the power to buy the best. Above all, she has had the courage to remedy her mistakes. The result to-day is Mr. Lowell's building, to which New York alone in the world can provide both the right setting and the right scale.

C. H. R.

#### Our Small Suburban House Competition.

THE interest taken in our recent competition for plans and section of a suburban house suited to the needs of a small middle-class family was so great that we decided to institute a further competition for elevations based on the scheme placed first. The plans have been altered in certain respects by Mr. Swash, the successful competitor, to meet points of criticism raised by ourselves and some of our readers, and the scheme is now ready for adoption. In our next issue, therefore, we shall publish full particulars of the new competition. It will, we think, excite a great deal of interest, and, taken together with the first one, should have a substantial influence in improving the type of house commonly provided in the suburbs by the speculating builder, the estate development company, and the architect.

#### Road Surfaces.

THE ever-increasing toll of motor traffic, especially of heavy vehicles, has created a problem which local authorities find very difficult to solve. Experiments on a large scale have been carried out in many parts of the country with sections of road surface treated in various ways, and at the National Physical Laboratory a series of tests are about to be undertaken on a circular track built up with different surfaces and travelled over by a set of heavy wheels running at varying speeds: while further attention will be directed to the subject by the forthcoming Road Congress, with its exhibition. This is a matter that is somewhat outside our own scope, so far as country roads are concerned, but we may well refer to it when urban areas are under discussion. Thus, we may note that at last week's meeting of the City Corporation it was decided to substitute creosoted wood-blocks for asphalt in certain portions of Gracechurch Street. One member urged that wood was less sanitary than asphalt, and, when hot, exuded desiccated sewage, to the detriment of the public health; but, in reply to this the chairman of the Streets Committee said that wood was much quieter than asphalt—an important consideration where there were so many offices and buildings—and gave a greater grip for motor tires. This is not a debate into which we desire to enter, but, judging from the condition of some of the London streets, we should say that what is of more importance than the particular surface of wood or asphalt adopted is the necessity for better cleansing methods. The roadways are not washed half enough—some of them not at all; and the result is a continual state of dust and mud, as the weather is dry or wet. The future will, we think, get rid of the water-cart and the scavenger's brush, and will use a hose-pipe and a suction-pipe; in which respect Paris is far ahead, the daily flooding of its gutters with water resulting in much cleaner streets than are ever seen in London. Some of the streets of the metropolis are, indeed, a disgrace to the authorities who are responsible for their upkeep.

#### The Bridge and the Scenery.

A WOODEN bridge over the Thames, between Goring and Streatley, having become inadequate and unsafe, the local bridge commissioners are considering what kind of structure should be erected in its stead. Reinforced concrete having been suggested, "it has been urged," the newspaper writers say, "that a reinforced concrete bridge would spoil one of the most beautiful spots on the Thames." It does not appear upon what knowledge or experience this apprehension is based. It may be pure assumption, arising from the prejudice that always opposes innovation; but in any case it is unfair to the material to imply that, as a matter of course, it would kill the scenery. Many examples of reinforced-concrete bridges exist—mainly abroad, it is true—to show that the material lends itself very kindly to this application, while the few instances of its use for this purpose in England show that, in form at least, such bridges may be of graceful and comely design. It is in texture alone that the material is apt to be displeasing. As to shape and form, reinforced concrete is certainly unsurpassed in its range of adaptability; and since, in a question of scenery, it may be claimed that "the form, the form alone is eloquent," the texture being a mere matter of scrutiny so close as to exclude the landscape, this particular objection to reinforced-concrete bridges has no validity. If picturesqueness were the sole consideration, Michelangelo's expressed preference for marble would find general acceptance; but the Goring and Streatley authorities need not be reminded that there are cheaper stones which, with the aid of a competent architect, could be so composed as not "to spoil one of the most beautiful spots on the Thames."



## MODERN ARCHITECTURE.\*

BY THOMAS HASTINGS, FELLOW OF THE AMERICAN INSTITUTE OF ARCHITECTS.

WE American architects are oft-times confronted with the question as to why we have not an architecture of our own, one which is essentially American; and why it is that so many of us who have studied in Paris seem inclined to inculcate the principles of the Ecole des Beaux-Arts into our American architecture. The majority of people do not seem to realise that in solving problems of modern life the essential is not so much to be National, English or American, as it is to be modern and of our own period.

The question of supreme interest is: What influence life in its different phases has upon the development of architectural style? Style in architecture is that method of expression in the art which has varied in different periods, almost simultaneously throughout the civilised world, without reference to the different countries, beyond slight differences of national character mostly influenced by climate and temperament. Surely modern architecture should not be the deplorable creation of the would-be style-inventor, or that of the illogical architect living in one age and choosing a style from another.

*The Eternal Law of Development.*

The irrational idiosyncrasy of modern times is the assumption that each kind of problem demands a particular style of architecture. Through prejudice, this assumption has become so fixed that it is common to assume that, if building a church or a university, we must make it Gothic; if a theatre, we must make it Renaissance. One man wants an Elizabethan house; another wants his house Early Italian. With this state of things it would seem as though the serious study of character were no longer necessary. Expression in

\* Abstracts of a paper read before the Royal Institute of British Architects, May 26th. 1912.

architecture, forsooth, is only a question of selecting the right style. The two parties with which we must contend are, on the one hand, those who would break with the past, and, on the other, those who would select from the past according to their own fancy.

Style in its growth has always been governed by the universal and eternal law of development. If from the early times, when painting, sculpture, and architecture were closely combined, we trace their progress through their gradual development and consequent differentiation, we cannot fail to be impressed by the way in which one style has been evolved from another. This evolution has always kept pace with the progress of the political, religious, and economic spirit of each successive age. It has manifested itself unconsciously in the architect's designs, under the imperatives of new practical problems and of new requirements and conditions imposed upon him. This continuity in the history of architecture is universal.

What determining change have we had in the spirit and methods of life since the Revival of Learning and the Reformation to justify us in abandoning the Renaissance or in reviving Mediæval art, Romanesque, Gothic, Byzantine, or any other style? Only the most radical changes in the history of civilisation, such as, for example, the dawn of the Christian era and of the Reformation and the Revival of Learning, have brought with them correspondingly radical changes in architectural style.

*Style in Art.*

Were it necessary, we could trace two distinctly parallel lines, one the history of civilisation and the other the history of style in art. In each case we should find a gradual development, a quick succession of events, a revival, perhaps almost a revolution, and a



COUNTRY HOUSE AT WESTBURY, L.I. THOMAS HASTINGS, ARCHITECT.





PUBLIC LIBRARY, FIFTH AVENUE, NEW YORK CITY. CARRÈRE AND HASTINGS, ARCHITECTS.

consequent reaction, always together like cause and effect, showing that architecture and life must correspond. In order to build a living architecture we must build as we live. Compare the Roman orders with the Greek and with previous work. When Rome was at its zenith in civilisation, the life of the people demanded of the architect that he should not only build temples, theatres, and tombs, but baths, palaces, basilicas, triumphal arches, commemorative pillars, aqueducts, and bridges. As each of these new problems came to the architect, it was simply a new demand from the new life of the people: a new work to be done. When the Roman architect was given such varied work to do there was no reason for his casting aside all precedent. While original in conception, he was called upon to meet these exigencies only with modifications of the old forms. These modifications very gradually gave us Roman architecture. The Roman orders distinctly show themselves to be a growth from the Greek orders, but the variations were such as were necessary in order that the orders might be used with more freedom in a wider range of problems.

We could multiply illustrations without limit. Compare a workman of to-day building a Gothic church, slavishly following his detail drawings, with a workman of the fourteenth century doing such detail work as was directed by the architect, but with as much interest, freedom, and devotion in making a small capital as the architect had in the entire structure. Perhaps doing penance for his sins, he praises God with every chisel-stroke. His life interest is in that small capital; for him work is worship, and his life is one continuous psalm of praise. The details of the capital, while beautiful, may be grotesque; but there is honest life in them. To imitate such a capital to-day, without that life, would be affectation. Now a Gothic church is built by labourers whose one interest is to increase their wages and diminish their working hours. The best Gothic work has been done, and cannot be repeated. When attempted, it will always lack that kind of mediæval spirit of devotion which is the life of mediæval architecture.

If one age looks at things differently from another age it must express things differently. We are still living to-day in the period of the Renaissance. This Renaissance is a distinctive style in itself, which, with natural variations of character, has been evolving for almost four hundred years.

#### *The Potency of the Renaissance.*

So great were the changes in thought and life during the Renaissance period that the forms of architecture which had prevailed for a thousand years were inadequate to the needs of the new civilisation: to its

demands for greater refinement of thought; for larger truthfulness to nature; for less mystery in form of expression; and for greater convenience in practical living. Out of these necessities of the times the Renaissance style was evolved—taking about three generations to make transition—and around no other style have been accumulated such vast stores of knowledge under the lead of the great masters of Europe. Therefore, whatever we now build, whether church or dwelling, the law of historic development requires that it be Renaissance; and if we encourage the true principles of composition it will involuntarily be a modern Renaissance; and with a view to continuity we should take the eighteenth century as our starting point, because here practically ended the historic progression and entered the modern confusion.

Imagine the anachronism of trying to satisfy our comparatively realistic tastes with Gothic architectural sculpture or with painting made by modern artists! Never until the present generation have architects presumed to choose from the past any style in the hope to do as well as was done in the time to which that style belonged. In other times they would not even restore or add to an historic building in the style in which it was first conceived. It is interesting to notice how the architect was even able to complete a tower or add an arcade or extend a building, following the general lines of the original composition without following its style, so that almost every historic building within its own walls tells the story of its long life. How much more interesting alike to the historian and the artist are these results.

In every case where the mediæval style has been attempted in modern times the result has shown a want of life and spirit, simply because it was an anachronism. The result has always been dull, lifeless, and uninteresting. It is without sympathy with the present or a germ of hope for the future—only the skeleton of what once was. We should study and develop the Renaissance and adapt it to our modern conditions and wants so that future generations can see that it has truly interpreted our life. The time must come, and I believe in the near future, when architects of necessity will be educated in one style, and that will be the style of their own time. Whoever demands of an architect a style not in keeping with the spirit of his time is responsible for retarding the normal progress of the art. We must have a language if we would talk. If there be no common language for a people there can be no communication of ideas, either architectural or literary. I am convinced that the multiplicity of printed books and periodicals written by literary critics and essayists who have not even been apprenticed, but are writing with authority about art, has, perhaps, been more instrumental than anything else in bringing about



this modern confusion. I believe that we shall one day rejoice in the dawn of a modern Renaissance, and, as always has been the case, we shall be guided by the fundamental principles of the Classic. It will be a modern Renaissance, because it will be characterised by the conditions of modern life. We must all work and wait patiently for the day to come when we shall work in unison with our time. Our Renaissance must not be merely archæological, the literal following of certain periods of the style. Not only do many architects slavishly follow the character of some selected period, but they also deliberately take entire motives of composition from other times and other places to patch and apply them to our new conditions and new life. Every man's conscience must speak for itself as to whether such plagiarism is right; but while the moral aspect of this question has very little to do with art, yet intellectually such imitative work, though seemingly successful, positively stifles originality, imagination, and every effort to advance in the right direction.

#### *Modern Confusion in Style.*

The way is now prepared for us to endeavour to indicate what are some of the principal causes of the modern confusion in style. With us Americans an excessive anxiety to be original is one of the causes of no end of evil. The imagination should be kept under control by given principles. We must have ability to discern what is good among our own creations and courage to reject what is bad. Originality is a spontaneous effort to do work in the simplest and most natural way. The conditions are never twice alike; each case is new. We must begin our study with the floor-plan, and then interpret that floor-plan in the elevation, using forms, details, and sometimes motives, with natural variations and improvements on what has gone before. The true artist leaves his temperament and individuality to take care of themselves.

Some say that if this is all that we are doing there is nothing new in art; but if we compose in the right way there can be nothing that is not new.

#### *Eminent Americans.*

The architects in the early history of America were distinctly modern and closely related in their work to their contemporaries in Europe. They seem not only to have imbibed traditions, but to have religiously adhered to them. I believe that it is because of this that the genuine and naive character of their work, which was of its period, still has a charm for us which cannot be imitated. McComb, Bulfinch, Thornton, Latrobe, L'Enfant, Andrew Hamilton, Strickland, and Walters were sufficiently American and distinctly modern, working in the right direction, unquestionably influenced by the English architecture of Inigo Jones, Sir Christopher Wren, James Gibbs, Sir William Chambers. Upjohn and Renwick, men of talent, were misled, alas! by the confusion of their times, the beginning of this modern chaos, the so-called Victorian-Gothic period.

Gifted as Richardson was, and great as was his personality, his work is always easily distinguished, because of its excellent quality, from the so-called Romanesque of his followers. But I fear the good he did was largely undone because of the bad influence of his work upon his profession. Stumpy columns, squat arches, and rounded corners, without Richardson, form a disease from which we in America are only just recovering. McComb and Bulfinch would probably have frowned upon Hunt for attempting to graft the transitional Loire architecture of the fifteenth century upon American soil, and I believe all will agree that the principal good he accomplished was due to the great distinction of his art, and the moral character of the man himself, rather than to the general influence and direction of his work.



STATE EDUCATION BUILDING, ALBANY, N.Y.: THE ROTUNDA. PALMER, HORNBOSTEL AND JONES, ARCHITECTS.



Whether we agree with Charles F. McKim or not in wanting to revive in the nineteenth century the art of Bramante, Sangallo, and Peruzzi, he had perhaps more of the true sense of beauty than any of his predecessors in American art. His work was always refined, personal, and with a distinctly more classic tendency in his most recent buildings.

Will our monuments of to-day adequately record the splendid achievements of our contemporaneous life—the spirit of modern justice and liberty, the progress of modern science, the genius of modern invention and discovery, the elevated character of our institutions? Will disorder and confusion in our modern architecture express the intelligence of this twentieth century? Would that we might learn a lesson from the past—that modern architecture, wherever undertaken, might more worthily tell the story of the dignity of this great epoch and be more expressive of this wonderful contemporaneous life.

## BUILDINGS FOR SMALL HOLDINGS.

**L**AST week (page 560) we summarised the general conclusions reached by the Parliamentary Committee on Buildings for Small Holdings. It was mentioned that the Committee have considered it helpful to fix, for the dwelling-house, a minimum standard of accommodation. Their recommendations on this point are now given in detail, and are illustrated in a selection from the series of elevations and plans with which the Report is illustrated. A house built for a small holder should contain, as a minimum, the following rooms and offices of approximately the sizes given:—

	Minimum Area. sq. ft.	Approximate Dimensions.	
		ft. in.	ft. in.
Living-room or kitchen.....	180 .....	15	× 12
Scullery .....	80 .....	15	× 8
Larder or pantry .....	24 .....	6	× 4
Fuel store .....	35 .....	7	× 5
Bedroom No. 1 .....	150 .....	12 6	× 12
Bedroom No. 2 .....	100 .....	11	× 9
Bedroom No. 3 .....	65 .....	9	× 7 3

Total area of bedrooms ..... 315

Approximate cubic space in bedrooms, if averaging 8 ft. high all over, 2,520 cubic ft.

These, the Committee recognise, are, on the whole, very small sizes, only to be regarded as sufficient in exceptional cases where economy is so essential that space must be sacrificed to it.

The earth or pail closet will usually be situated away from the house, but the Committee see no reason why it should not be included under the main roof, provided it can be isolated properly from the living-rooms, dairy, and larder, and can be entered from outside. Many sanitarians offer an uncompromising objection to the use of earth-closets in any circumstances; but the chief objection to them is that they become unsanitary when neglected.

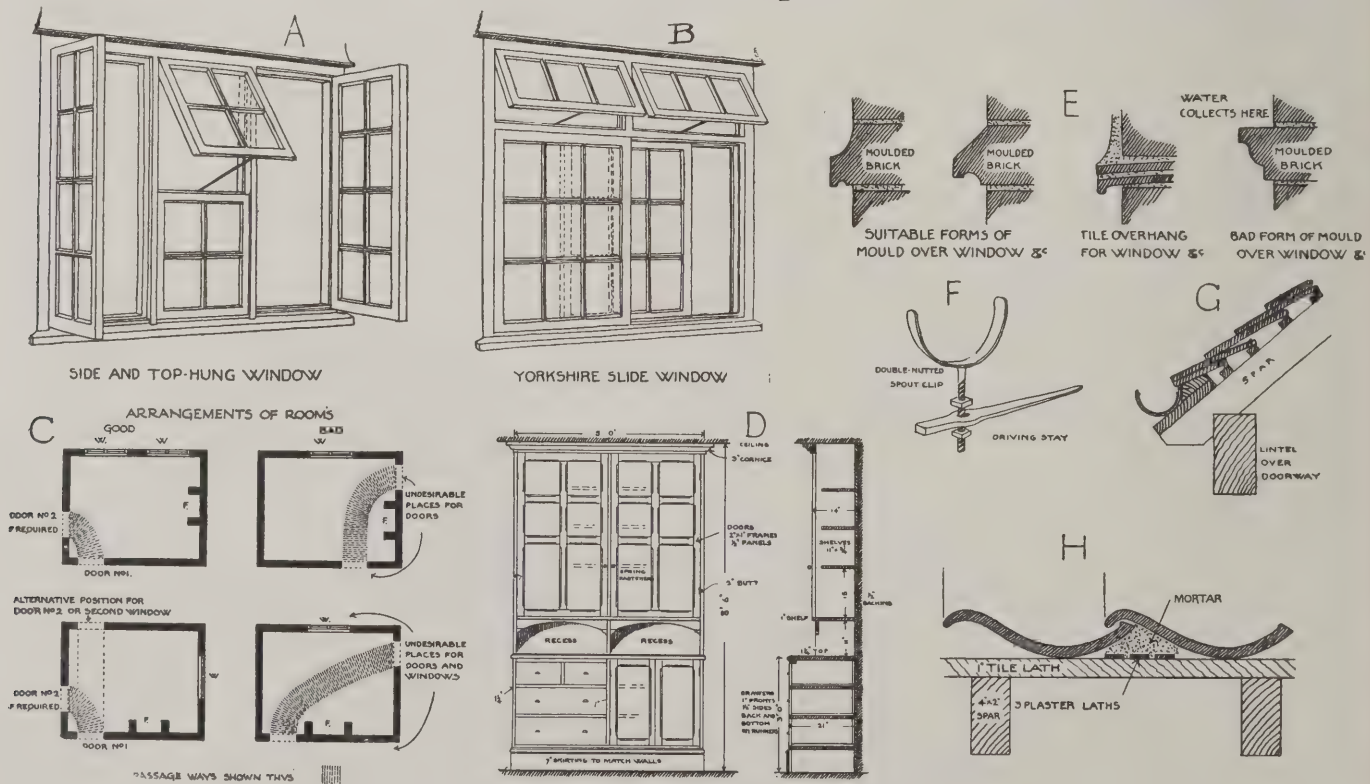
Whenever there is a parlour on the ground floor, and therefore greater area on the first floor, the minimum sizes of bedrooms should be as follows, instead of those given above:—

	Minimum Area. sq. ft.	Approximate Dimensions.		
		ft.	in.	ft.
Bedroom No. 1 .....	160 .....	13	4	× 12
Bedroom No. 2 .....	120 .....	12	×	10
Bedroom No. 3 .....	110 .....	11	×	10
390				

Approximate cubic space in bedrooms, if averaging 8 ft. high all over, 3,120 cubic ft.

### Some Important Details.

Living-room, scullery, larder, fuel store, lobby and staircase, bedrooms, dairy, parlour, washhouse, etc., having been discussed in detail, the Committee proceed to consider the structure of the house. Economy, they again urge, should be sought in careful planning and simplicity of arrangement and construction, and not in the undue cutting down of the quality of the materials, fittings, or workmanship. It is very common to see the damp-course placed too low. It should never be less than 6 in. above the highest finished level of the ground, and some allowance should be made for the possibility of the tenant raising the level of the ground a few inches by laying out flower-beds. Cavity walls are recommended as the most effective and economical means of securing a dry interior. Failing this, the outside of the house should be protected with a good thick coating of cement rough-cast. It is important that good mortar should be used. Inferior mortar is





the cause of much trouble with rough-cast. Recent investigations go to show that the commonly adopted proportion of 3 to 1 for mortar does not give good results, particularly when the lime is measured after slaking. With the average materials a proportion of 2 to 1 would prove more satisfactory.

The Committee are impressed with the advantage of protecting the walls by means of overhanging eaves. In the case of window openings, weak spots are particularly likely to occur at the joints between the brick wall and the wooden frames. Properly constructed string courses and drip courses across the base of a gable or over the heads of windows and doors afford considerable protection by throwing off the water and reducing the volume running down the surface of the wall or window. Proper weathering and throating, however, are essential. Where stone sills are considered too costly, an oak undersill with good projection is recommended in preference to brick on edge. A good drip under the sill may be made by using two courses of paving quarries laid to break joint at a sufficient slope, and projecting an inch or two beyond the face of the wall.

#### *Roof-coverings.*

The best roof-covering to adopt depends upon the district, but tiles are preferable to slates. Doubles, 13 in. by 7 in., or small ladies, 14 in. by 8 in., or even smaller sizes, make a good roof if laid with a minimum rise of one-third of the span, and with a lap of 3 in. Over a large part of England one of the cheapest roof-coverings is provided by the old-fashioned pantiles, but they should be laid with a pitch of not less than 45 deg., and with a good lap; but if not laid with mortar, tiles are apt to be stripped by wind, and will not effectually keep out driving rain and fine snow. The Norfolk system of lathing, which consists in laying three rows of plaster laths down each row of tiles, to hold the mortar upon which the tiles are then bedded, is a very effective way of making a good and secure pantile roof. Another way is to lay over the spars or rafters, before the tile laths are fixed, a covering of thin waterproof material, of which many kinds are new on the market. With this method the tiles may be bedded on each other with just sufficient mortar to keep them from moving (H, page 588).

#### *Some Constructive Details.*

The Yorkshire slide is recommended as the simplest and least expensive form of window. If an oak sill is used, with oak pegs instead of an outside retaining fillet, durability is ensured (see B, page 588). The casement window (A) comes next in the matter of simplicity, and a portion of the sash can be hung at the top, so as to open outwards and permit of ventilation if for any reason the casement must be kept closed.

For living-rooms, the best shape is probably not quite square, but, say, 15 ft. by 12 ft. If the fireplace is on one of the short walls, the windows should be on the adjacent long wall, and the door or doors should be placed as near as possible to the corner furthest from the fire and window. If the fireplace is on one of the long walls the room should be made somewhat wider, to allow for the projection of the chimney-breasts. The window should then be on one of the short walls, and the door may be at the opposite end of the long wall which carries the fireplace, provided it is not less than about the length stated above. The fire should never be placed immediately opposite the only window, otherwise the housewife will stand in her own light when cooking (C, page 588). This, of course, is the merest commonplace of planning, but nevertheless the point, though absurdly obvious, is so often neglected that the commissioners are fully justified in drawing attention to it.

The best form of eaves gutter is the thick cast-iron half-round 5-in. size, with strengthened edge. It should

be carried on stout wrought irons screwed to the spars or rafters; or adjustable bearers make a good support and facilitate the provision of the even falls required to clear all the spouts of water. Eaves gutters in front of cart-sheds are easily injured, and in such a position the gutter may with advantage be set on a protecting board (F and G, page 588).

Seven complete specifications are given in the report, which contains also thirty sheets of designs. We hope to have further opportunities of dealing with this interesting and valuable Report, which was originally published at 11s. 3d., but a reprint of it has now been issued at 1s. 6d. (post free 1s. 10d.), copies of which can be obtained from the Westminster office of Messrs. Eyre and Spottiswoode, Ltd., 2, Victoria Street, S.W.

## CORRESPONDENCE.

*The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents.*

*Correspondents are asked to be brief, and to write on one side only of the paper*

#### *The Garden Suburb Movement.*

*To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.*

SIRS,—When Mr. G. H. Russell, in his letter contributed to your issue of May 7th, asks if I would have the garden citizens desert the wilds of Hampstead for some such centre of sweetness and light as Poplar or East Ham, he makes use of a method of controversy most dear to the advocates of garden cities. When someone objects to a particular manner of attempting to cure a well-known evil it is suggested that he approves of the evil itself. Also, what is best in the garden city is always contrasted with what is worst in the older towns. An amusing example of this is supplied in an article on Letchworth that appeared in a daily newspaper of May 13th. It is so delightful that the whole passage is worth quoting. The writer is describing his first impressions on arrival there, and he says:—"Endymion set me in love with Letchworth as I issued from the station. He was twelve years old. He came in a flash, leaping from a cycle—as Greek a boy as I have ever seen—straight, strong, and arrowy, with the country sun in his warm-tinted cheeks but heaven knows what far-off Ionian ancestry in his wonderful violet eyes. He was distributing papers. He should be retained at the station by the Garden City Company as a living example of what boyhood can be reared on garden cities." Was there ever a more grotesque piece of propaganda? For all we know, the boy may have only just come to Letchworth. I may add that I was not struck by the beauty of the inhabitants, either young or old, but my impressions upon this matter have as little bearing upon garden cities as have those of the newspaper writer. Our modern population is constantly shifting, so this fact is apposite to our present controversy, that in a large number of the charming and picturesque houses the bedrooms were of a quite preposterous size and shape. It is healthier to sleep in a "dull" rectangular room at Poplar than in these places with the quaint dormer windows and the bed tucked away in a dark and stuffy little cavern.

The editor of "Co-Partnership" calls attention to the good work which the Co-Partnership societies have accomplished. No one could wish to minimise its value. The idea of Co-Partnership is wholly admirable. It only remains for the communal spirit of their societies to find expression in a larger and more dignified manner of building than it is possible to see any evidence of at present. Let the unity of purpose that animates them lead to a unity in design, to a formal treatment in which insignificant, presumptuous, and petty little houses have no place.

With regard to the agreeable social conditions which are said to prevail in garden cities and suburbs, one is



compelled to be a trifle sceptical. The great problems of our civilisation cannot be solved in a piecemeal way, for the blemishes of our economic system pursue us everywhere. The poor suffer far more from lack of food than from lack of air, and garden cities do not supply a remedy for this state of things. Let me illustrate this fact from the "Daily News and Leader" of May 16th. It says there was "a jarring note in the joy-day at Letchworth," and mentions "silent, undemonstrative groups of men who held aloft banners that were inscribed with mottoes such as these:—

"Can a man live on 5½d. an hour?

Our children must be fed; they don't grow on open spaces only.

We are not green garden citizens."

It appears that the banner-bearers were two hundred and fifty bricklayers and carpenters of the Garden City who had been on strike since May 1st for an all-round rise of a penny an hour!

It seems necessary to offer a few criticisms of this movement, which has hitherto been so lavishly praised; there is a certain danger in it, a danger which becomes patent when one reads a paper like the Letchworth "Citizen," some of whose contributors are incapable of seeing any beauty in the older towns, and adopt a contemptuous attitude towards them as if they were not even worth redemption. These people forget the fact, if they ever apprehended it, that large portions of our towns were built at architectural periods much greater than our own.

ENGLISHMAN.

#### *The Architects' and Surveyors' Approved Society.*

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—In response to the notice which you kindly gave two weeks ago with reference to the scheme for voluntary insurance which is being embarked upon by this society, I have received a large number of inquiries, which lead me to suppose that it would be of assistance to your readers to emphasise the following points:—

(a) The new voluntary section has no connection with State insurance.

(b) It may be joined by anyone connected with the architectural or surveying professions, whether employer or employee, without any question of income limit.

(c) Membership of other societies, whether for State insurance or otherwise, does not disqualify anyone from joining the voluntary section of this society.

May I ask those intending to join the society to forward their names to me as early as possible?

F. R. YERBURY, Secretary.

18, Tufton Street, Westminster.

#### *Portable Schools.*

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—With reference to Mr. Topham Forrest's letter in your last issue, may I ask him what is meant by the statement, "This building is the first of its kind to be used as a school in this country"? I was under the impression that several schools on the "Doecker" system had been erected in this country. So far as Derbyshire is concerned, one was erected at Long Eaton in July, 1908—just five years ago. This school had through ventilation by means of open windows to each classroom, a point which appears to have been overlooked in the Northumberland plan.

GEORGE H. WIDDOWS,

Architect to the Derbyshire Education Committee.  
Derby.

## OUR PLATES.

### *Wallingford Court, Berkshire.*

As the Centre Plate in this issue we illustrate a drawing by Mr. Walcot of Wallingford Court, Berkshire, exhibited at this year's Academy. It was the intention of the architects, Messrs. Detmar Blow and Fernand Billerey, that this building should be in complete harmony with its surroundings, but, at the same time, it was desired that it should lose none of those qualities of unity which distinguish classical design. The building is symmetrically grouped, and the design of the entablature, together with the pilasters, has been specially studied so as to harmonise with the mullion windows and projecting bays. The plain facings are to be of rough-faced and square-jointed Gibraltar rubble, the worked parts in Chilmark stone, and the roof is to be covered with Stonesfield slates. We regret that we are unable to give a plan of the house; the architects do not desire this to be published.

### *Detail of the Taylorian Institute, Oxford.*

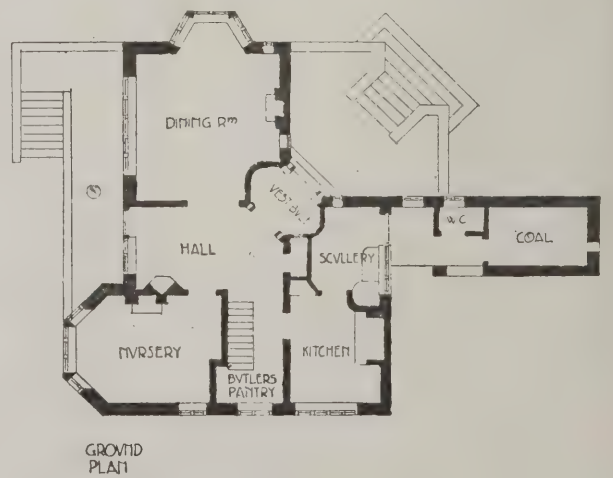
We illustrate on page 591 a detail of the Beaumont Street façade of the Taylorian Institute, Oxford, designed by C. R. Cockerell. This is an excellent example of the manner in which Cockerell infused an entirely new spirit into the old conventional features of architectural design.

### *Buildings for Small Holdings.*

The pair of smallholders' houses shown on page 595 are designed to afford the minimum amount of accommodation, where a dairy is necessary, as set out in the Report of the Departmental Committee recently appointed to inquire into the subject of buildings for small holdings (see page 588 of this issue). If the dairy is not required, the space could be occupied by the fuel store, with the E.C. either adjoining or built detached. The larders, being east and west, should have shutters or other protection from the summer sun. As two bedrooms are on the north side, it would be an advantage that the aspect should not be due north and south. The houses are designed for a slate roof. They are planned as a pair with a view to economy, and the farm buildings to accompany are shown on the right-hand side of the page. Two alternative arrangements of farm buildings are shown. In both cases the cart-shed could be converted into a large box or cowhouse for five cows when required, and a cart-shed could either be placed on the north or built detached in the stackyard.

### *House at Dore, Sheffield.*

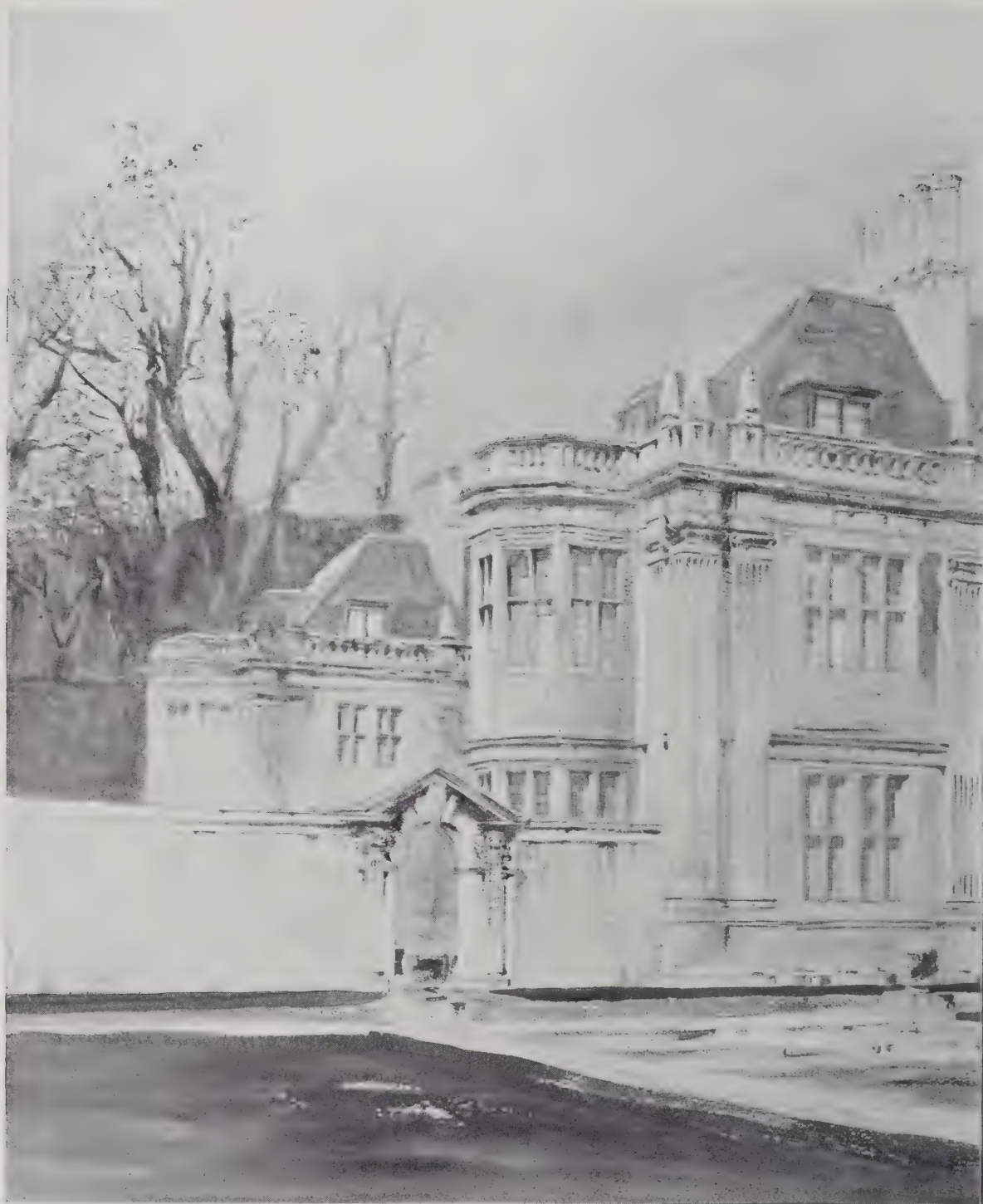
This house, shown on page 593, was designed by Mr. Edgar Wood, F.R.I.B.A. It occupies a very elevated position, commanding extensive views of the surrounding country. The walls are of random stone rubble obtained on the site, and the roof is covered with stone slates.



HOUSE AT DORE, SHEFFIELD: GROUND-FLOOR PLAN.







WALLINGFORD COURT, BERKSHIRE. DETAIL

*(Royal Acad)*





BLOW AND FERNAND BILLEREY, ARCHITECTS.

*Exhibition, 1913.)*







THE TAYLORIAN INSTITUTION, OXFORD: DETAIL OF SCREEN WALL TO BEAUMONT STREET.

C. R. COCKERELL, ARCHITECT.

*(See page 550.)*





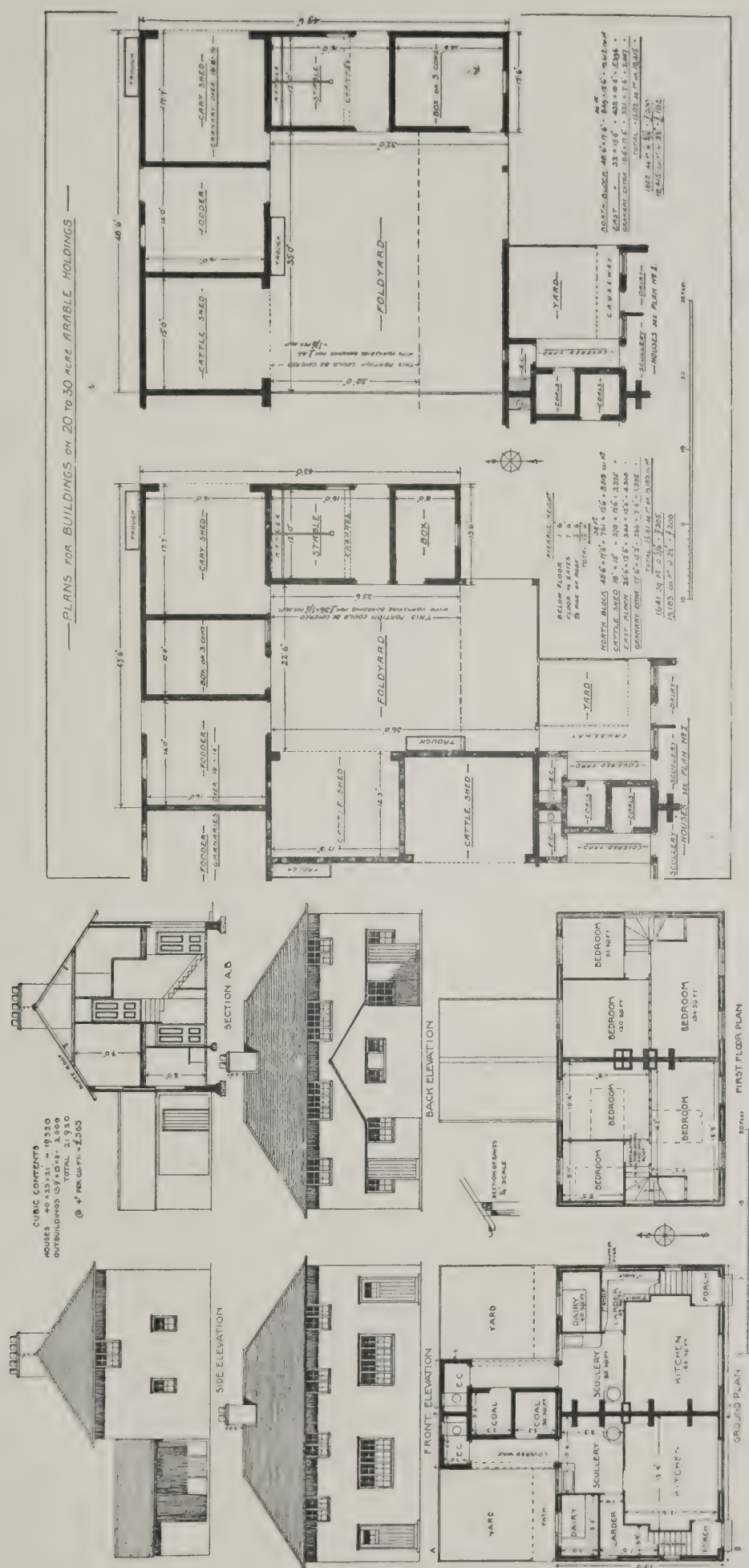


MODERN DOMESTIC ARCHITECTURE. HOUSES OF INTERMEDIATE SIZE. XI.—HOUSE AT DORE, SHEFFIELD.  
EDGAR WOOD, F.R.I.B.A., ARCHITECT.

*(See page 590.)*



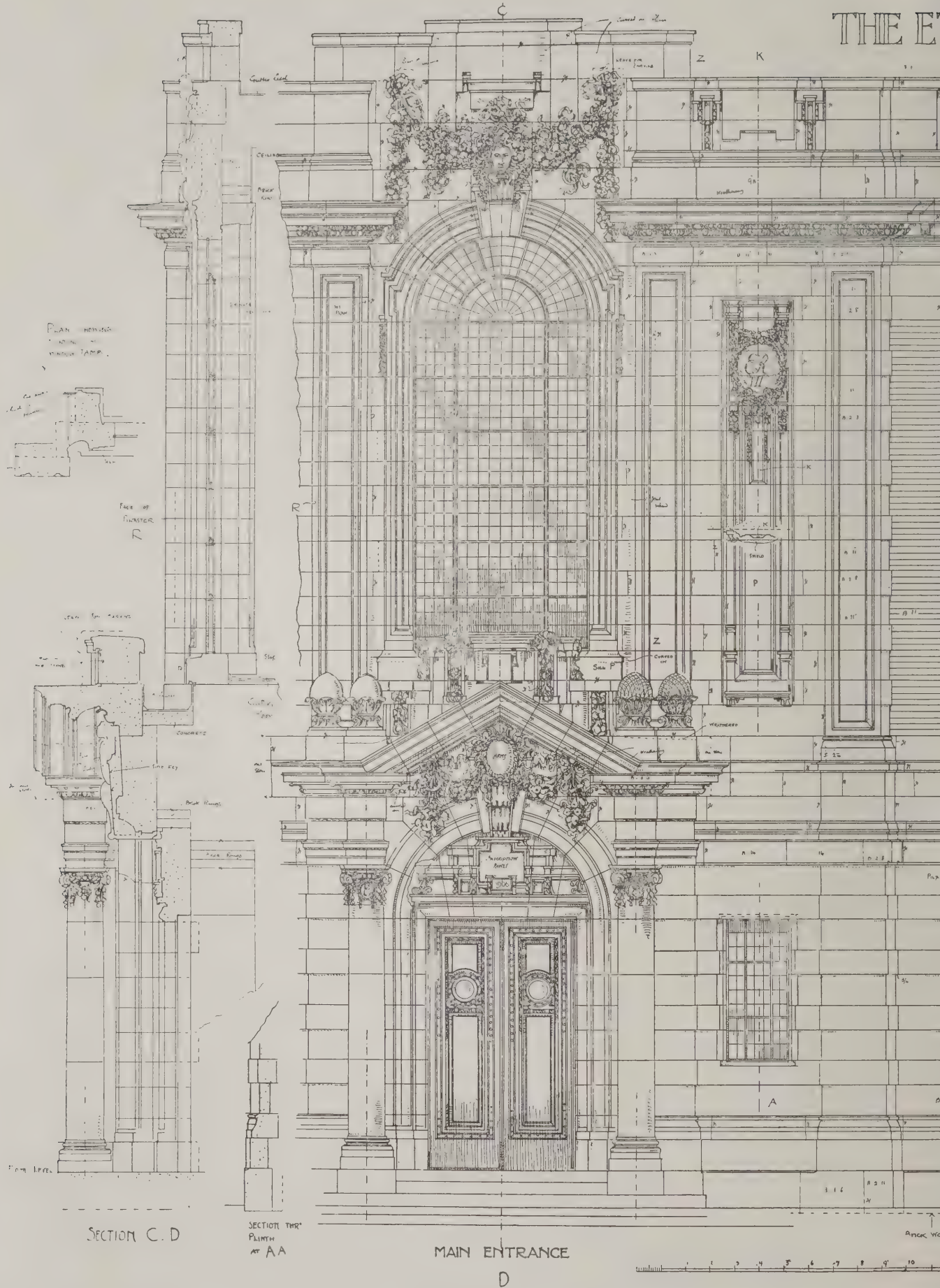




DESIGN FOR PAIR OF SMALLHOLDERS' HOUSES (OF MINIMUM SIZE FIXED BY DEPARTMENTAL COMMITTEE), WITH ALTERNATIVE PLANS OF BUILDINGS FOR A PAIR OF ARABLE HOLDINGS OF 20 TO 30 ACRES TO GO WITH SAME.

(See page 588.)

THE E



SECTION C. D

SECTION THRU PLINTH AT AA

MAIN ENTRANCE

D





## HERE AND THERE.

THE Baroque, we are told, is beginning to rage in our midst, and the blame (or praise) must be set against all that merry-making in Vienna which took place under the ægis of a respectable Royal Institute. Some members of an International Congress, I know, came back all agog with the sculptural delights of the Hofburg, the Belvedere, and the Ministry of the Interior, and one in particular—our most brilliant exponent of the union of sculpture with architecture—has given us almost a riot of sculpturesque decoration. And the reason why this Baroque work finds so much appreciation among us to-day is, I suppose, because we are sliding away gracefully and unconcernedly from those strict tenets which the purists used to affright a former generation. But the spirit of the past points a heeding finger, and we shall do well to take account of our position before we plunge forward into untold license. The group of new buildings in the heart of Westminster offers us quite a study in varying phases of modern sculpture as applied to architecture. The Wesleyan Hall, chief among them, I have already dealt with, and for the present it will suffice for me to restate my opinion that, much as I admire the brilliance of the work, it would have been improved by greater restraint in its handling, and a happier choice would have been to take other motifs for a pseudo-religious building than the emblems of Roman law and war that figure so prominently among the decorations. Close by, the new Middlesex Guildhall is approaching completion. Here, presumably in deference to the Abbey opposite, a modern Gothic treatment has been adopted, and every feature is embellished with carving. Portcullises, fleurs-de-llys, dragons coiled into queer shapes, coats-of-arms, swags—all are here in abundance, while angelic forms begin to take shape out of the corbel-blocks, and robed figures armed with set-squares and globes that resemble "bombs" are poised miraculously over the window openings, peering suspiciously, like "militants," into the rooms below. A third new building, the Institution of Civil Engineers, displays still another aspect of modern sculpture. Here is to be seen, over the main entrance, one of those familiar groups of boy figures with an escutcheon between them which academic sculptors have made familiar to us, while crowning the pavilions on either sides are, respectively, the prow of an ancient ship and the front of a chariot, the one bristling with spars and the other with spears and flags. (Why not a bridge as more relevant to civil engineering than anything else?)

\* \* \* \*

Now, the essence of the whole matter lies, first, in the degree of freedom which sculpture can take when forming part of an architectural composition, and, secondly, as to how far the element of appropriate symbolism can be pushed. As regards the first point, my own opinion is that the introduction of the Baroque brings with it the most enlivening possibilities, and, so long as sculptors and architects keep their heads, we should welcome it whole-heartedly: it pulsates with vigorous life, and if only it takes us away from the correctly academic it will effect a great reform. But so far as the question of symbolism is concerned, we stand, I think, in great danger of making our buildings rather ridiculous. The axe and rods, Justice with her scales and unsheathed sword, are admirable motifs for a law court, but we wonder at them when we see them on a cinema building; and things are even worse when we affect a quaint fancy in Gothic enrichment which was characteristic of untutored craftsmen of the Middle Ages, but is foolish when designed by a presumably cultured architect and executed by a trade-unionist. There are motifs enough and to spare; so why not use them as appropriately?

I had observed it before, and I noticed it again when in Paris a short time ago—the surprising way in which many of the buildings go to pieces at roof level. It is as though the architect had designed a façade embracing five or six floors crowned by a bold cornice, and had either forgotten all about the roof, or had left someone else to finish the top of the building in any way that seemed easiest. This is an old fault in the modern interpretation of Classic architecture. But, unfortunately, there must be roofs and there are such things as chimney stacks that cannot do their work if they are tucked away out of the sweep of air currents. And it is, I fear, either a common sin of the architect or a weakness for tallboys on the part of builder, tenant, or building owner, that we so commonly see the skyline of buildings reduced to a most deplorable condition after a short occupancy. It is in this very particular that the buildings of modern Paris suffer to an even worse extent than those in London. Gabriel's grand blocks on the Place de la Concorde, for example, bristle with pots of all kinds above the roof, and in this way their appearance, when viewed from a little distance, is sadly marred. And one can observe very much the same thing in a hundred other cases, including quite modern buildings: not chimney-pots alone, but ranges of dormer windows piled above one another in the most unhappy fashion—a very medley in strange contrast to the orderliness of the façade below. There is every need therefore to take as much count of the roof as any other part of the building, and to see that the effect of a balustrade, very elegant on the elevational drawing or when looked at in sharp perspective from below, is not spoiled by chimney heads sticking up in a timorous fashion here and there. I much prefer to see the stacks set boldly along the front, as in the quadrangle at Eton, or grouped together and made a feature of: for they then take their part in the general composition, whereas when they and the dormers and the roof make one think that the architect had forgotten all about them till the last moment, the rest of the work looks rather inglorious.

\* \* \* \*

The thunderstorm of the past week has afforded the Pressman the opportunity of using once again his admirable stock phrase when writing about a building that has been struck by lightning. In this case it was the St. Paul's Church Mission Hall, Kennington, that lost its top portion—variously described as a steeple, a belfry tower, and a spire. After the flash, we are told, there was an alarming noise of falling masonry, "and the coping-stone came down with a crash." Why this honour for the coping-stone? The roof, the parapet, or an entire section of walling seem to be of little account in comparison with it. The word, I suppose, is a captivating one, with a technical look about it; and thus gets used for the sake of appearance.

We are all of us apt to misuse a word, and in connection with architecture there are many instances to illustrate how even a flagrant misapplication becomes approved by custom. On former occasions I have made reference to this, and have pointed out certain misapplications and mis-spellings; and to the list already given might be added the word "chimney-piece." The strict meaning of this is, I believe, a painting filling the space in an overmantel, but we have long since given it a wider application than that. There is, however, no warrant for a mantelpiece being called a chimney-piece, any more than it should be called a fireplace. The correct application would appear to be, that a mantelpiece is a surround and embellishment to the fireplace, including a mantel-shelf; and that a chimney-piece is a complete feature comprising mantelpiece and overmantel.

UBIQUE.



## MODEL ANSWERS TO R.I.B.A. EXAMINATION QUESTIONS.

## INTERMEDIATE EXAMINATION.

BY G. E. FRANCIS.

**HISTORICAL ARCHITECTURE—(d) ITALIAN, FRENCH, AND ENGLISH RENAISSANCE.**

(Concluded from page 573, No. 959.)

4. Give short description of the causes which led to the introduction of the Renaissance into France, stating approximate date.

Give sketch plan of general arrangement of one of the Châteaux of François Premier period.

Illustrate, by sketches, some architectural features.

*Answer.*—The French Renaissance, in architecture at all events, is commonly dated from Charles VIII.'s Italian campaign in A.D. 1494, but specimens of Italian and Classic art had crossed the Alps nearly a century before.

Those examples were small, and were probably due to clergy, ambassadors, merchants, and artists travelling between the two countries.

The chief force giving impetus to the movement were the wars between France and various States in Italy, the latter becoming the general battlefield of Europe.

In A.D. 1491, Charles VIII. became King of France, and at the same time claimed the kingdom of Naples. He was encouraged by Florence and other Italian States, and eventually, in A.D. 1494, started his triumphant procession through Italy.

His success was short, however, for in A.D. 1495 he was forced northward again, at the same time losing all his art treasures, etc., which he had intended taking to France.

On Charles's death Louis XII. ascended the French throne, and claimed the kingdom of Milan in addition to that of Naples.

To enforce his supposed rights, he waged war throughout Italy during the period of A.D. 1499-1504, Florence again being the ally of the French, but his armies were finally forced to retire from the Peninsula in A.D. 1513.

By means of these wars the French, although failing in their actual design, came into contact with the superior civilization of Italy, during which time the Renaissance movement gained a strong hold upon them.

On the accession of Francis I. to the French throne, the prospects of the Reformation were the brightest possible. The majority of the brilliant hopes of the reign, however, were never fulfilled, although much was done towards the perfection of the architectural part of the movement.

The wars with Italy were continued, but after the first instance were entirely unsuccessful, Francis himself eventually being made a prisoner.

In spite of this, numerous Italian artists and workmen were introduced into France, the most notable of the former being Cellini, Serlio, Vignola, Rosso, Primaticcio, and Cortona.

Mixing with the French workmen, those from Italy imparted the New Art in all directions, and this, coupled with the efforts of the men mentioned, was successful in firmly establishing the new style.

The Château de Chambord (A.D. 1526-1544), one of Francis I.'s magnificent buildings, is illustrated, being typical of the François Premier period.

The influence of the mediæval fortress is still to be seen in the towers, four of which

are placed at the angles of the main square block.

Two long corridors, running north and south, and east and west, divide this square into four compartments, in each of which is a suite of three rooms.

Through these rooms are entered another complete set in each tower, having separate spiral staircases.

This arrangement is repeated on each floor.

At the intersection of the main corridors is the famous double spiral stair, encased in a pierced stone shell with orders of pilasters.

5. Describe, in detail, any one of the works of Sir Christopher Wren. Mention the character of his treatment of stone, brick, joinery, and wrought-iron work.

Illustrate your answer.

*Answer.*—St. Stephen's, Walbrook (A.D.

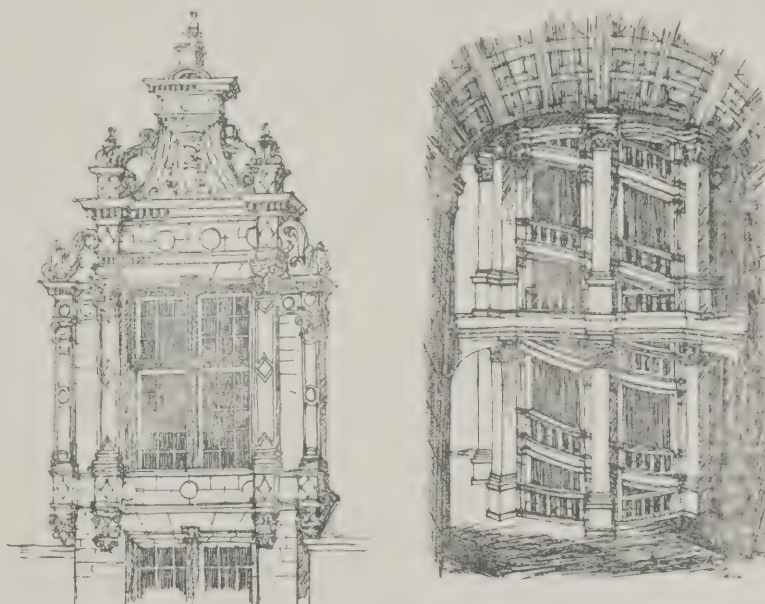
1672-1679) is, although one of Wren's cheapest and smallest buildings, deservedly famous.

Of his some fifty churches, this is probably the only one without galleries, thus indicating how the division of a large portion of a church into two storeys diminishes the possibility of a fine interior.

In plan it consists of a parallelogram, 82 ft. 6 ins. by 59 ft. 6 ins., divided into five aisles of varying widths by rows of columns in six bays.

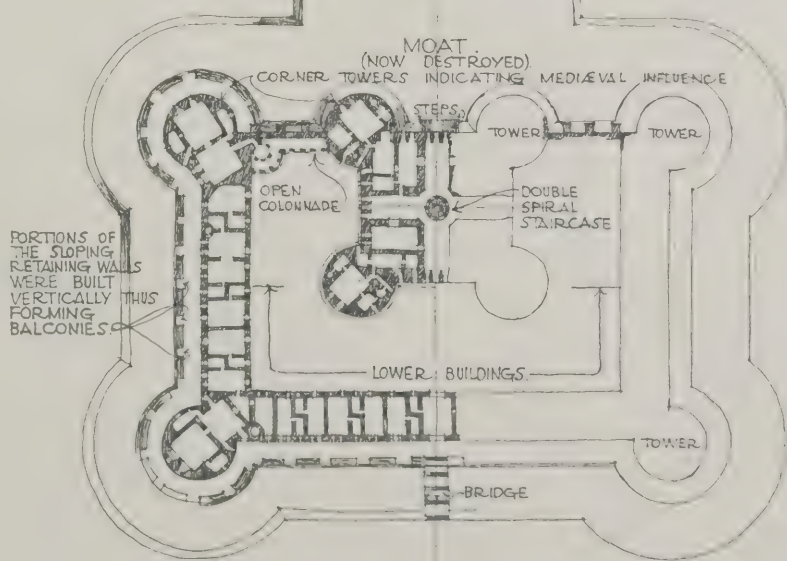
The division into five aisles was essential in order to obtain the necessary loftiness of proportion, the height to the underside of the flat trabeated ceilings being 36 ft.

The third and fourth columns from the east in the centre aisle are omitted, leaving a square space which is covered in with a circular dome, constructed of lead and



DORMER WINDOW :

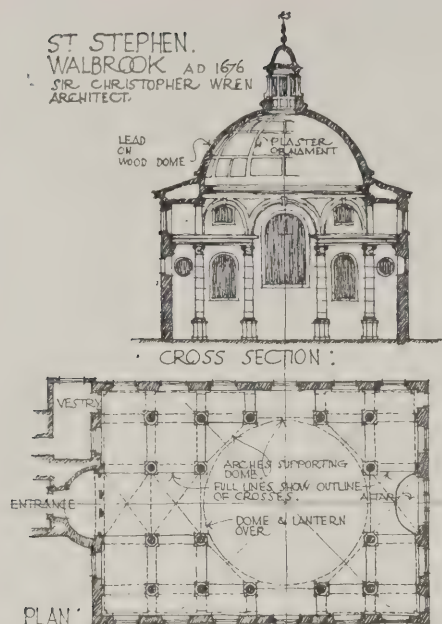
CENTRAL STAIRCASE "



CHATEAU DE CHAMBORD. A.D. 1526.  
PLAN SHOWING GENERAL ARRANGEMENT  
OF BUILDING :

Question 4.





Question 5.

wood, 45 feet diameter and 63 feet in height.

The sixteen columns are well arranged, embodying the various beauties such as the Latin cross, the Greek cross, the square, the octagon, and the circle, thus obtaining out of a square room the effect of a church with nave, aisles, and a crossing.

Constructional reasoning is very obvious; all rectangular forms, expressing stability, being kept below; in fact, up to the entablature all is right-angled. Above occur the oblique lines of the octagon, and the elegant circular forms of the dome.

Wren, having solved the main difficulty in a masterly and original manner, was inclined to be careless with his details, the plaster work in the dome not being very good.

Examining Wren's treatment of materials generally, one finds the same characteristics throughout—viz., large, broad expanses of brick or stone, or a combination of both, relieved with ornament of a rich and bold description.

At Hampton Court Palace may be seen excellent examples of his use of the materials mentioned, which were always of the best quality, and used to the greatest possible advantage.

He used gauged brickwork of a very fine quality, which he is supposed to have introduced into this country through Dutch influence.

At Hampton Court, the silvery-grey of the Portland stone dressings is contrasted with brickwork of two different tints—dark red ordinary brick in the lower stage, and bright red, rubbed and gauged, above.

Where brick and stone were employed together, the latter was used in the central feature and quoins.

This combination in many of his buildings is unrivalled for its sober dignity, and is what one may call a certain graciousness of design.

His treatment of stonework may be seen in the nave wall of St. Paul's, where the broad, plainly rusticated expanse of stone is relieved by the Corinthian pilaster caps linked up with rich swags.

The stone carving by Cibber and his men was good, but there was too much of it, Wren seeming to have been carried away on occasion by his sculptor's exuberance.

The joinery work in the wood panelling

at Hampton Court is, both in detail and proportion, of great excellence, and has a combination of boldness and refinement.

The carving, which was usually executed in limewood, was carried out by Grinling Gibbons, whose work was remarkably good.

For his wrought-iron work Wren was indebted to a French smith named Tijou, an artificer of unsurpassed excellence, who designed the beautiful gates at Hampton Court and did fine work elsewhere, all of which naturally betrays French feeling.

## FIRE SERVICE IN RUSSIA.

Considering that, as regards general progress, not to speak of mere civilisation, Russia is about a century to the rearward of the rest of Europe, her fire service is much less primitive than might have been anticipated. If fire protection is not yet regarded in that country as a matter of national concern, we in Great Britain are in that respect in exactly the same position; Russia, indeed, having the advantage over us that legislation on the subject is contemplated in the Duma. It does not follow that anything will be done. Even if enactments are passed it will not be surprising to find them inoperative. Already the Ministry of the Interior is supposed to have charge of the fire interests of the country, but it does little or nothing to show that it has any influence or authority in the matter, and no very conspicuous energy has been displayed by the Board of Agriculture, which has been entrusted with fire-prevention measures for rural districts, and is tardily taking up the question of building construction.

A special commission of the British Fire Prevention Committee, which visited Russia at the invitation of the Imperial Russian Fire Service Society, have just issued a record of their experiences, in which they state that there are four kinds of fire brigades in Russia, comprising—(1) police fire brigades, supported by the municipality, but controlled by the chief of police; (2) municipal fire brigades, controlled by the civic authority; (3) volunteer brigades, conducted as private societies; (4) private and factory fire brigades. There are, for all Russia, 163 professional fire brigades, and 2,614 volunteer brigades—a poor total, considering the extent of the country.

Among the peculiar features observed by the committee, the most striking was the system of watch towers, from which the position of an outbreak is observed and signalled. These towers are distributed over various districts throughout St. Petersburg and Moscow, as well as in smaller towns. Again, there is the "mounted orderly" or outrider, who, on an alarm of fire, dashes ahead to warn the traffic and guide the firemen to the scene of the outbreak. It is suggested by the commissioners that pilotage might be usefully adopted in this country, the outrider to be mounted, not on horseback, as in Russia, but on a swift motor cycle. We believe that this suggestion has been anticipated—occasionally, if not systematically.

With respect to fire prevention in the cities, the precautionary measures seem to be limited to the consideration of roofs, flues, and hearths. In Warsaw, the influ-

ence of the flue on outbreaks is recognised by the inclusion in the fire brigade of a section of chimney-sweeps, of whom a certain number are allotted to each station, at least two turning out, with their special appliances, at each call.

Two hopeful features, both of which are likely to have an important effect on fire-service organisation, are the steady growth of a co-operative insurance scheme, and the establishment of a municipal fire service school in St. Petersburg, where courses are provided to train young men for positions as brigade officers. Normally the curriculum extends over two years, the subjects including squad drill and gymnastics, fire-appliance drill, workshop practice, building construction, fire-appliance engineering, elementary mechanics, electricity, mathematics, combustion, chemistry, elementary veterinary knowledge, elementary ambulance work, literature and précis writing, fire insurance, mechanical and architectural drawing, general technology, fire legislation, and general knowledge. The students form a supplementary fire brigade, which is organised on the German unit system.

German influence in Russia, although very strong, does not entirely exclude British materials and appliances from Russia, where the commission noted many fire-engines of British make, and one of the most perfectly equipped private fire-protective services was that found in the large drapery establishment of Messrs. Muir and Mirrielees, Ltd., at Moscow, who have more than 2,000 employees, and have formed a brigade consisting of twenty-five men and a dozen supernumeraries. Full particulars of the protective measures in this establishment are given in the book, which contains a large and decidedly interesting collection of photographic illustrations.

## CONSTRUCTION OF SCHOOLS.

During the recent conference of Scottish School Medical Officers, held in Edinburgh, a discussion took place on the construction of schools. Dr. Campbell Munro, county medical officer, Renfrewshire, protested against the palatial school buildings which were being erected all over the country. Instead of a monumental pile set high for architectural effect, the school building should have the floor level only 6 in. above the level of the site, set on a layer of concrete. The central hall type of school which had come to be the accepted thing, had certain advantages, but these were overborne by the obstruction it offered to ventilation, and he was of opinion that no more schools of the central hall type should be built. He advocated the introduction of the "cross ventilation" type of school. A height of 12 ft. was all that was necessary in any size of classroom. Open fires were quite insufficient to maintain a proper temperature in a classroom. He considered that every school should be fitted with spray baths, and hot and cold water. Dr. Meikle, Edinburgh, said that the Edinburgh School Board was now departing from the central hall type of school, and their latest building was of the verandah type and adapted for extension if necessary. Another type of school was the open-air school. They were now in Edinburgh putting up a cheaper type of building. Dr. Munro added that the money saved on the pavilion type of school would go far to reduce the cost of the site. This we take to mean, not that a less costly site will serve, but that a reduction on the total cost is effected.

Journal of the British Fire Prevention Committee. Special subject: The Record of the Special Commission formed by the British Fire Prevention Committee to visit Russia. Being a Diary and Notes compiled by Edwin O. Sachs, F.R.S.Ed., Architect. Pages xxviii. + 76 + 14, 9 ins. by 11 ins., with 160 illustrations, price 10s. 6d. London: 8, Waterloo Place, Pall Mall.



## FIRE PREVENTION NOTES.

*Modern Methods of Fire Protection.*

In dealing with fire-prevention month by month in this Journal, it has been often urged that the means and methods of fire-prevention are abundant. To requests that they should be specified, it could only be answered that they were too numerous for complete assembly, that a selection would have appeared invidious, and that, as occasion arose, each and all had been dealt with separately and at intervals. To Mr. Harold G. Holt, A.R.I.B.A., has occurred the happy idea of collecting such data in a book.\*

Fire protection the author divides into two sections—its structural aspect, which relates to the erection of buildings constructed to resist fire and to confine outbreaks within small areas, and the extinctive or palliative aspect, which relates to the means of suppressing outbreaks.

*Fire-resisting Materials.*

Treating of materials, the characteristics of those that are fire-resisting are summed up under three heads: (1) The material should be neither disintegrated nor consumable under great heat. (2) When it is heated, its co-efficient of expansion should not be so great as to endanger the structure of which it forms part. (3) When heated to a high temperature, then suddenly drenched with water or otherwise cooled, it should not contract so rapidly as to cause it to fly asunder or split. It is strange to reflect how completely these attributes of materials were overlooked in the early days of fire-resisting construction. Buildings which were almost entirely constructed of stone and iron were confidently proclaimed to be beyond the power of flames to destroy. The first of them that took fire was a place in which much paper was stored, and the heat engendered was so fierce as to disintegrate the stone and twist the stanchions. When water was poured in, the stanchions contorted so violently as to reduce the building to a mass of smouldering ruins, hardly one stone being left upon another. It was only then recognised that iron itself needed protection from fire, and must be insulated or encased.

*Brick, Stone, and Iron.*

Of ordinary building materials, the good hard well-burnt stock brick is the most fire-resisting. Stones do not behave well in fierce heat, the best of them, sandstone, disintegrating. Limestones quickly fail, and granite may crumble to fine sand under very high temperatures. Stone is a particularly dangerous material to use for staircases, because of its deceptive appearance after being subjected to fierce heat. It has tempted people to their death by showing no outward signs of the effects of fire, and falling to pieces as soon as stepped upon. Timber in large balks is of slow combustion, but causes dense asphyxiating smoke and, when the fire is fierce and continuous, ends by adding fuel to it. Doors made of hardwood, however, such as oak, teak, jarrah, and kauri, offer a considerable degree of fire-resistance. Wood that, having been impregnated with various chemical solutions—such as ammonium phosphate, chloride, and sulphate—is known as "non-flammable," gives out no flame when exposed to fire. Concrete is most eminently fire-resisting when properly prepared. Broken granite

and burnt ballast aggregates gave the best results in a series of fire tests of concrete.

*Prevention and Extinction.*

Internal openings and window openings, and the most up-to-date methods of fire-resistance applicable to them, are discussed under "The Planning and Construction of Fire-resisting Buildings," steel office and library fittings receiving a due share of attention, and various types of buildings being classified in accordance with the special risks to which they are subject. Two chapters are allotted to floor construction. Column protection, the protection of horizontal openings, and roof construction are lumped together in one short chapter. Fire-escapes, fire-resisting fittings, and examples of buildings, form another somewhat miscellaneous assembly, and the remainder of the book—Chapters VII. to X.—is devoted to fire hazards, methods of extinction (sprinkler installations having an entire chapter to themselves), and a series of valuable appendices giving various official regulations as to fire-resisting construction and means of escape from fire, with a brief and rather inadequate glossary of technical terms. No important aspect of the subject seems to have been overlooked, but much of the valuable information which the book contains is presented in the rather crude form of fire-test reports, or of dry records of laboratory experiments. If these and other data had been more subjectively digested, and more freely discussed, the book might have been made much more interesting to read. It is, however, a work of the highest utility. The book is copiously illustrated.

## IN PARLIAMENT.

(By Our Press Gallery Representative.)

*The New Delhi.*

Mr. Montagu (Under-Secretary for India) informed Mr. King that the Delhi Town Planning Committee had submitted three reports—the first report on the selection of a site, submitted after the first visit of the Committee to India; a special report on the possibility of building the Imperial capital on the north site; and a final report on the town planning of the new capital. The three reports had been printed in India and copies were now on their way to this country for presentation to Parliament.

*Inspection of Scotch Derrick Cranes.*

Mr. W. Thorne asked the Home Secretary whether his attention had been called to the jury's verdict and the coroner's comments in connection with the death of a crane signalman while working for the General Building Company on April 24th in High Holborn; if he was aware that the jury expressed an opinion that inspectors should have the power to inspect the Scotch derrick cranes, which should always be fitted with a double chain; if he was aware that the chairman of the London County Council Building Acts Committee stated that for the past ten years representations had been made from time to time to the Home Office to have such cranes properly inspected; and if he intended taking any action in the matter.

Mr. McKenna, in reply, referred Mr. Thorne to an answer he had given on the subject on May 8th. He had not seen any such statement by the chairman of the London County Council, nor was he aware of any such representations having been made to him by the County Council.

Mr. John Ward wished to know if there was any prospect of the Public Works and

Engineering Bill being introduced this session.

Mr. McKenna said the state of public business at the present moment was very crowded and he was unable to make any statement as to the introduction of any further Bills. Replying to a further question on another day he stated that he would avail himself of the first opportunity to press the Bill forward.

## COMPETITIONS.

*New Kendrick Schools, Reading.*

In this competition the designs of Messrs. Charles Smith and Son have been placed first, and those of Messrs. Albury, Rising, and Morgan second. Both these firms are of Reading.

*Public Baths, Arbroath.*

Arbroath Town Council has adopted the designs of Mr. Hugh Gavin, architect, of Arbroath, for public baths for Arbroath. The estimated cost of the building is £6,000. The first premium was £25. The second, of £15, goes to Mr. David Wishart Galloway, of Brechin; the third (£10) to Messrs. Wilson and Savage, of London, W. Twenty-six designs were submitted to the assessor, Mr. James Thomson, Dundee City Engineer.

## COMPETITIONS OPEN.

JUNE 7.—HOSTEL FOR MALE STUDENTS, EXETER.—Mr. Edwin Cooper, F.R.I.B.A., is assessor. Particulars (one guinea, returnable), H. Lloyd Parry, Town Clerk, Exeter. Summary in our issue for April 2nd, and plan of site in the issue for April 9th.

JUNE 14.—BATHS, NEWCASTLE.—The Corporation invite designs for baths at Benwell, Walker, and Heaton. Assessor, Mr. Herbert W. Wills, F.R.I.B.A. Conditions, with site plans, obtainable (postal order 1s.) from A. W. Oliver, Town Hall, Newcastle-on-Tyne. Summary in our issue for April 23rd.

JUNE 14.—MUNICIPAL BUILDINGS, DEVONPORT.—The Corporation invite designs for municipal buildings and a guild-hall. Premiums £350, £150, and £100. Assessor, Mr. Ernest Newton, A.R.A., F.R.I.B.A. Conditions (£2 2s., returnable) from R. J. Fittall, Town Clerk, Municipal Offices, Devonport, to whom designs are to be sent. Summary and plan of site in our issue for March 12th.

JUNE 19.—LAYING OUT ESTATE, NEWCASTLE.—Corporation invite designs for laying out a portion of their Walker Estate. Premiums £50, £30, £20. Particulars (one guinea, returnable), A. W. Oliver, Town Clerk, Newcastle-on-Tyne. Summary in our issue for April 16th.

JULY 1.—ROYAL PALACE AND LAW COURTS, SOFIA.—Particulars, Commercial Intelligence Branch, Board of Trade, Basinghall Street, E.C.

JULY 24.—SANATORIUM, FAZAKERLEY.—Corporation of Liverpool invite designs for a sanatorium to be erected at Fazakerley, and to contain 250 beds. Premiums 150, 100, and 50 guineas. Particulars (two guineas, returnable), Edward R. Pickmere, Town Clerk, Municipal Offices, Liverpool. [NOTE: The date has been extended from that previously announced.]

SEPTEMBER 1.—TOWN PLANNING, HIGH WYCOMBE.—Schemes for the town planning of the borough are invited by the Borough Council. Premiums £25, £10, and £5. Particulars, T. J. Rushbrooke, Borough Surveyor, High Wycombe.

\* "Fire Protection in Buildings." A Practical Treatise for Engineers, Architects, Surveyors, and Property Owners. By Harold G. Holt, A.R.I.B.A. London: Crosby Lockwood & Son, 7, Stationers' Hall Court, Ludgate Hill, E.C.4, and 5, Broadway, Westminster. Pages xx. + 260, 9 ins. by 6 ins., price 8s. 6d. net.



## SOCIETIES AND INSTITUTIONS.

## SURVEYORS' INSTITUTION.

*Election of President.*

The annual meeting of the Surveyors' Institution was held last week, when the Hon. E. G. Strutt, the retiring president, installed his successor, Mr. William Edward Woolley, of Loughborough, Leicestershire, as president for the ensuing twelve months. Mr. Arthur Lyon Ryde was elected a vice-president to serve with Mr. H. H. Smith, Mr. G. F. Stewart, and Mr. Howard Chatfield Clarke, F.R.I.B.A., while Mr. Edwin Walter Rushworth (London), Mr. J. D. Wallis (Manchester), and Mr. Dendy Watney (London) were added to the council. Lord Alverstone and Sir John Wolfe Barry were re-elected associates of the council. The total membership now exceeds 5,000, a net increase of 395 in the past year.

## THE CONCRETE INSTITUTE

*Annual General Meeting and Dinner.*

The fourth annual general meeting of this Institute was held on May 22 at Denison House, Vauxhall Bridge Road, Mr. E. P. Wells, J.P., president, in the chair.

The annual report was unanimously adopted.

The president read the report of the scrutineers of the annual election of members of council, which resulted in the following being elected: Mr. Osborn C. Hills, Mr. E. J. Lovegrove, Mr. Frederick Purton, Mr. H. J. Tingle.

The auditors were re-appointed, and the chairman then presented the Institute medal, which is awarded annually for the best paper read in the previous session, which was received by Mr. Edwin O. Sachs on behalf of Mr. Richard L. Humphrey, whose paper entitled "Fireproofing" had been awarded the medal for the 1911-12 session.

The following were elected members of the Institute: George Augustus Couper, M.Sc. (Leeds), Stud. Inst.C.E., London; Claude Charles Keep, director of the Adamant Stone and Paving Co., Aberdeen, London; Dr. John S. Owens, B.A., M.D., Assoc. M.Inst.C.E., M.R.San.I., F.R.G.S., F.G.S., Consulting Engineer, London; Frederick Percy Watson, district surveyor's assistant, London; John Matthew Whyte, Assoc. M.Inst.C.E., M.Brit.Astron.A., London; Harold Percy Stockham Worthy, reinforced concrete engineer, London; John Richard Gwyther, M.A. (Manchester), York; Victor Haiden Knight, reinforced concrete designer, London.

It was announced that the council had admitted the following students: Charles Henry Adams, Grad.I.Mech.E., draughtsman, London; Edward Kaylor, reinforced concrete engineer, London; Donald Arthur Stevens, London; Baron Joseph Stokvis, junior engineer and draughtsman, London.

The meeting terminated with a vote of thanks to the president, proposed by Mr. Perkins and seconded by Mr. Harding.

The third annual dinner of the Institute was held in the Crown Room, Connaught Rooms, on Thursday evening, May 22nd, Mr. E. P. Wells, J.P. (president) in the chair.

Mr. R. J. Thomas, M.Inst.C.E. (County Surveyor of Buckinghamshire; president of the Institution of Municipal and County Engineers), in proposing the toast of the Concrete Institute, congratulated the members on its polity and progress.

Mr. Wells, in reply, said that during the past year the Institute had had a very busy time indeed. Meetings had been held fortnightly, and the average attendance had

been 60 per cent. greater than in the previous session. The lectures given by the secretary at the end of last year were exceptionally well attended, the average attendance being 100. He mentioned that, including the sixteen honorary members appointed a short time ago, the membership of all classes now reached 1,014. It is proposed that when the total ordinary membership reaches 1,000 an entrance fee shall be required and the subscription raised to two guineas. This must be done if the Institute is to continue its experimental work and thus to become an important educational society. He added that at last the Institute had got something definite from the Local Government Board with regard to the repayment of loans in respect to works of reinforced concrete construction.

Mr. F. E. Wentworth - Shields, M.Inst.C.E. (vice-president) proposed the toast of "The Visitors," and Mr. Greville Montgomery replied.

Mr. E. Fiander Etchells proposed the toast of the Chairman, and Mr. Wells briefly responded.

PLYMOUTH, DEVONPORT, AND  
STONEHOUSE MASTER BUILDERS'  
ASSOCIATION.

This association held its annual dinner last week at the Royal Hotel, Plymouth, Mr. A. N. Coles presiding.

Mr. T. Baker proposed "Prosperity to the Building Trades" and Alderman A. R. Debnam responded. "Architects and Surveyors" was proposed by Mr. W. G. Laphorn, who remarked that Plymouth in its outlying districts might have been made far better if some central authority—he did not say the Town Council, for there were very few men in it who understood the question—of competent men had existed to see that places were put up with some grace and elegance, and a credit to the town. Mr. E. Coath Adams (chairman of Devon and Exeter Architectural Society), responding, said that with the Town Planning Act, and one thing and another, there was a chance now of architects doing better work than was done twenty or thirty years ago. Mr. J. Paton (Plymouth Borough Surveyor) also responded, and in the course of his speech said that personally he did not think much of garden cities. There was a great deal of what he might call æsthetic twaddle talked about them. Their association should try to fix theorists clamouring for impossible houses, and bring them down to a plain matter-of-fact statement of cost.

## LEGAL.

*Appointing an Architect.*

In the King's Bench Division, Mr. Justice Bailhache tried an action brought by Mr. Charles Lovett Gill, architect, against Mr. John Wehl, for the recovery of £125 paid by plaintiff to defendant, plaintiff alleging that the consideration for which the payment had been made had failed.—On behalf of plaintiff it was stated that in July, 1911, he was asked by defendant to become the architect for some proposed medical baths and winter gardens to be built at Hastings, and it was suggested that in consideration of this appointment plaintiff should apply for 1,000 £1 shares, paying £125 down, and the balance on receipt of his fees. Defendant paid this sum, but the scheme had not matured, and he had received no consideration for his money.—Counsel for the defendant submitted that he had no case to answer.

—The Judge said he thought there was no case. Plaintiff, he said, having been made architect, one of the main considerations for which he had applied for the shares had been complied with.—Plaintiff's counsel remarked that the £125 was paid for the shares, and for nothing else. 'The Judge: You cannot split up the contract in that way. It is true he has not had his shares, and there is therefore a partial failure of consideration, but that would not sustain this action. One of the promises has been fulfilled, and I cannot see how you can say the consideration has wholly failed.—Ultimately the Judge consented to adjourn the hearing for about a month, in order that the plaintiff's case might be amended so that plaintiff might sue for non-delivery of the shares.

## NEWS ITEMS.

*Irish Art Exhibition.*

An exhibition of Irish art is now open at the Whitechapel Art Gallery.

*New Roof-Glazing System.*

A new system of glazing for roofs and other structural work, patented by Mr. A. Scott, of Acoc's Green, Birmingham, is designed to secure watertight setting of the glass. The glazing is held by a wooden bar which can be moulded to any design, the top being triple-grooved and lead-lined. The middle groove, which is deeper than the other two, forms a water-channel, and the two smaller grooves provide a seating for a woven tarred yard cord  $\frac{1}{4}$  in. in diameter, on which the glass rests. The fixing is by means of a copper slide, with intermediate copper clips passing between the glass plates and through a rounded zinc or copper capping. The system, which has been taken up by Messrs. O. C. Hawkes, Ltd., of Birmingham, is now being used for the first time on a factory roof in Birmingham.

*Guy's Hospital Medical School.*

The new buildings of the Medical School at Guy's Hospital, which were opened by Mr. Balfour on June 3rd, are divided into three main blocks. The former department of anatomy has been rebuilt, and an extension made to the building devoted to the teaching of operative surgery, while the old biological laboratory in Hunt's House has been refitted throughout. In the main block of the new buildings one passes through the entrance hall and finds on the left the students' laboratory for physiological chemistry and a large lecture theatre capable of accommodating 400 students. To the right are research laboratories for the demonstrators. On the ground floor to the right is the Wills Library, and beyond stands the Gordon Museum. Adjoining the museum is a large lecture theatre. On the first floor to the right is the students' histological laboratory and the research laboratories of the lecturer in physiology; to the left are the offices of the medical school and the committee room of the staff. The second floor accommodates the department of physics, and the third floor contains the students' chemical laboratory. There is a new dental block consisting of three stories, with a central courtyard, and the third of the new blocks provides accommodation for the department of pathology. Messrs. Woodd and Ainslie, F.F.R.I.B.A., of Westminster, are the architects. This completes the rebuilding of Guy's Medical School, which has occupied more than ten years, and is stated to have cost altogether more than £100,000.



## PROJECTED NEW WORKS.

*Workmen's Dwellings, Pontefract.*

Pontefract Corporation has, at a special meeting, accepted the tender of a local contractor, Mr. W. Horner, for the erection of workmen's dwellings in Halfpenny Lane, at a cost of £21,000.

*Public Hall, Manchester.*

Manchester is feeling the need for a colossal public hall in which great political and other meetings may be held, and it is stated that a movement is on foot to acquire one of two suitable sites that are now available in the heart of the city.

*Nurses' Home, Swansea.*

At a meeting of the Building Committee of the Swansea Board of Guardians last week it was decided to obtain the sanction of the Local Government Board to a scheme for the erection of a nurses' home at a cost of £7,000.

*Asylum, Montgomeryshire.*

Montgomery County Council have adopted their Asylum Committee's recommendation to erect a new asylum rather than to proceed with a scheme for adapting Forden workhouse. It is estimated that the complete cost will be £57,000.

*Town Hall Extension, Ealing.*

Ealing Town Hall and municipal offices are to be extended at a cost of £4,000, and according to a scheme submitted by the borough council to the Local Government Board a loan spread over thirty years will only entail an annual contribution represented by one-seventeenth of a penny in the pound on the rates.

*New Thames Bridge.*

It is proposed to construct a new bridge over the Thames between Goring and Streatley, at an estimated cost of £12,000. The present wooden bridge is somewhat unsafe, and the suggestion apparently is that a concrete and iron bridge to carry modern traffic should be erected. A private Act of Parliament will be necessary if the scheme is undertaken.

*Joint Station for Aberdeen.*

Messrs. P. and W. Anderson, Ltd., masons and building contractors, Glasgow, have secured the contract for the erection of the new joint passenger station at Aberdeen for the Caledonian and the Great Northern of Scotland Railways. The estimated cost of the works is between £130,000 and £140,000. The bulk of the material to be used will be Aberdeen granite.

*Public Hall, Glasgow.*

An influential syndicate has secured the option of a site at Glasgow stretching from the south side of Bothwell Street to Waterloo Street, between Pitt Street and Douglas Street, for the erection of a large public hall. Plans have been prepared by Mr. James Miller, Glasgow, for a building to seat 15,000 people, and from 25,000 to 30,000 standing or walking about. It is estimated that the cost of the building will be between £40,000 and £50,000, exclusive of internal fittings.

*Tall Building for Regent Street.*

A long lease of the Hotel Capitol, Regent Street, has been obtained by the British Columbian Government. The intention is to pull it down and build an imposing suite of offices seven or eight storeys high. In addition to a large exhibition hall, provision is to be made for a cinematograph theatre, in which the resources of the country will be illustrated on the screen. The purchase price is

stated to be £75,000, and £50,000 will be spent on the building.

*Deaf-and-Dumb School, Margate.*

Mr. Frank Windsor, Licentiate, R.I.B.A., M.S.A., of Croydon, has again under his charge extensive alterations and decorations at the Royal School for Deaf and Dumb Children, Margate, which has the reputation of being the largest and best equipped institution of its kind in the kingdom.

*The Alhambra, Bradford.*

Messrs. John Tanner and Sons, of London and Liverpool, have been commissioned by Messrs. Greenhall and Co., the architects of the Alhambra, Bradford, to execute the whole of the exterior of this theatre in their patent Ferrocon imitation French Caen stone. The work is to be carried out in the Neo-Grec style. Messrs. Tanner and Sons have also been entrusted with the fibrous plaster and decoration work for the interior.

*"White City" for Birmingham.*

The proposal to establish a White City in Birmingham has been revived. A new site forty acres in extent has been guaranteed at Saltley, near to Adderley Park Station, and it is estimated that the total scheme will cost a quarter of a million. Work will be commenced in the near future. An artificial lake will be constructed, and among the buildings will be a theatre on repertory lines, an inventors' section, and a section representing the Balkan States.

*Public Works, Grangemouth.*

An application has been made to Grangemouth Town Council for a supply of water for the proposed new public works, the estimated quantity being 50,000,000 gallons per annum, or about 150,000 gallons per day. It is proposed to erect the works on ground belonging to the Marquis of Zetland, who has offered specially favourable terms. The area of the works will be 40 acres, and about 400 men will be employed. After consideration the Council agreed to give special terms for the water required.

*City of London Street Improvements.*

The Corporation of the City of London has recently been in communication with the London County Council as to the payment of the Council's promised contributions towards City improvements, amounting, roughly, to £388,030, including the widening of Fleet Street and a costly alteration at the eastern end of Leadenhall Street. It has been arranged between the two bodies that the Council shall pay £100,000 per annum, subject to the Corporation's having spent at least £200,000; that in the event of the Corporation expending more than £200,000 in any one year, the excess shall be carried forward to the succeeding year; and that the arrangement shall not in any way prejudice the consideration by the Council of future applications for contributions by the Corporation. For the present £50,000 a year of the Council's moiety is being devoted to the widening of Fleet Street.

*Authorised Town-Planning Schemes*

It is understood that the Local Government Board have given authority for the preparation of four further town-planning schemes under the Housing, Town Planning, etc., Act, 1909. The schemes are authorised to be prepared by the Corporation of Stockport, the Urban District Council of Prestwich, and the Rural District Council of Wirral. In the case of Stockport the scheme is to apply to an area of about 1,000 acres in the borough. At Prestwich the scheme is to extend to

an area of about 1,800 acres in the urban district. In the case of Wirral two schemes are to be prepared.

*Concrete Cottages for Coventry.*

The Coventry municipal housing question is likely to be solved by the Local Government Board being prepared to sanction, under proper conditions, the use of concrete in the construction of the cheap class of dwellings that will be required. The Board also consider that the local authority is not warranted in enforcing the construction of bedrooms so that a height of 9 ft. shall cover the whole of the area, but that 9 ft. over two-thirds of the area with the slope of the roof falling to the height of 5 ft. will come within the local building by-laws. This would considerably reduce the cost of workmen's cottages, particularly those with three bedrooms.

*New Municipal Works.*

The Local Government Board have decided to hold, or have recently held, as the subjoined dates indicate, inquiries into proposed expenditure by public bodies as follows: Water Supply.—Penybont Rural District Council, £1,820 (June 4th); Pontypridd and Rhondda Joint Board, £9,690 (June 5th). Sewerage, Drainage, and Sewage Disposal.—Safron Walden Borough Council, £1,250 (June 4th); Risca Urban District Council, £1,205 (June 6th). Street Improvements, Public Walks, etc.—Clacton Urban District Council, £6,900 (including purchase of property) (June 3rd). Various.—Thingoe Rural District Council, housing, £1,300 (May 29th); Chelmsford Borough Council, ditto, £24,271 (May 30th); Bourne Rural District Council, ditto, £3,360; Harwich Borough Council, electrifying sewage pumping station, £3,000 (June 3rd); Prestwich Urban District Council, housing (no amount stated) (June 4th); Cleethorpes-with-Thruscoe Urban District Council, refuse destructor, £5,100; conveniences, bandstand, shelter, £1,484 (June 5th); Kingston-upon-Hull City Council, furniture and fittings for Guildhall, £8,159 (June 6th).

*Sanatoria Provision, Birmingham.*

The scheme prepared by the Public Health and Housing Committee of the Birmingham City Council for the provision of further accommodation for the treatment of consumptive cases has at last been confirmed and approved by the Local Government Board, and the whole scheme will now be presented for the approval of the City Council at their meeting in June. Originally the plans contemplated the extension of the Yardley Road Sanatorium so as to provide for 72 additional beds for women, 70 for children, and 16 for men. The total cost was estimated at about £29,074, or approximately £190 per bed. The Local Government Board verbally promised to contribute a grant of £90 per bed towards the cost of the buildings, a total of £14,220, leaving about £15,000 to be found from the rates. The plans were submitted to the Local Government Board, who suggested that the cost per bed might be reduced; and since then the scheme has been enlarged and the plans revised to meet the views of the Board. In the alterations that have been made the net cost has no been appreciably reduced, but the proposed additional accommodation has been increased from 158 beds to 184 beds—a difference of 26 beds. This extension, however, is not to be carried out at Yardley Road. There the additional accommodation has been reduced from 158 beds to 142 beds, and provision is made for 20 more beds at Salterley Grange and 22 more at West Heath.



## BOOK NOTICES.

### *Hungarian Architecture.*

Railway companies do a great deal of insufficiently recognised work in describing the countries traversed by their lines; but valuable and interesting as are the many illustrated guide-books issued by the railways of our own country, they fade into insignificance in comparison with, for example, the monograph *de luxe* edited for the Royal Hungarian State Railways, and published by order of the Royal Hungarian Minister of Commerce. This sumptuous large quarto deals with Hungary as a whole—its history, its topography, and its people.

The most centrally situated country in Europe, Hungary can boast of a constitution that is more than a thousand years old, in spite of its having been, by reason of its peculiar geographical position, for centuries the battleground of Europe, and notwithstanding the mixture of races, diverse in character as in language, of which its population is composed. These heterogeneous types of humanity, with their corresponding variety in picturesque costumes, supply much of the pictorial interest of the volume, in which, however, landscape and buildings are adequately represented. There are, for example, fine half-tone illustrations of Stühler's Academy of Sciences; Korb and Giergl's Academy of Music; Nicholas Ybl's Margaret Baths; Schickedanz's Museum of Fine Arts; Ybl's Opera-house in the Andrassy-Ut; Schickedanz and Herzog's Art Gallery; Aloysius Hauszmann's New York Life Assurance building; Belváros's University building; Ignatius Alpár's Austro-Hungarian Bank building; and his Exchange in Liberty Square; Korb and Giergl's Clotild Palaces; Sigismund Quittner's Gresham Life Assurance buildings; Aloysius Hauszmann's Palace of Justice; Samuel Petz's Market-hall; Edmund Lechner and Julius Pártos's Museum and School of Decorative Arts; Frederick Feszl's Municipal Hall; Imre Steindl's Houses of Parliament; St. Stephen's Cathedral (Nicholas Ybl), and many other buildings, civil and ecclesiastical, in Budapest, besides a great number in other parts of a country that is on the whole enviably rich aesthetically—in paintings and in statuary as well as in architecture. Among the many fine monuments shown are the statues to Vásárhelyi and Louis Kossuth (to whom also a noble mausoleum, designed by Aloysius Strobl, dignifies the Kerepes Cemetery), the graceful group commemorating the war of independence, the striking monument to King Matthias, the strangely dedicated statue to "Anonymus" (the nameless clerk of King Béla), and the curious "millennium memorial," in which a bronze eagle is seen alighting on a pile of rubble heaped on the summit of a rugged cliff. With its lofty hills and its huge plains, Hungary is a fine hunting country as well as rich in pasture lands and in mineral resources. Sportsmen may chase the chamois or bring down the bison in the High Tatra, or, with less physical but perhaps more moral risk may follow the horse-racing, which is a passion with a large section of the community in Hungary, where are to be found, it is claimed, the largest studs in existence. When, by such means as the beautiful volume under notice, Hungary attracts a greater number of British and American visitors, we shall, incidentally, hear much more about the interest

of its architecture, which, as was remarked in a previous article on the country, shows, generally, a very remarkable eclecticism, in which, however, the various influences are harmoniously blended into a distinct national style—fundamentally neo-Classic but free in decorative details, and nevertheless intensely Hungarian.

"Hungary." By Stephen Bárony, Dr. Jules Bodnár, Dr. Samuel Borovszky, Dr. Béla Erdődi, Béla Gonda, Dr. William Hankó, Dr. Louis Lóczy, Theodore Novák, Dr. Villibald Semayer, Charles Siegmeth, Dr. John Sziklay, and Dr. Ladislav Toldy. Edited for the Royal Hungarian State Railways by Albert Kain. 60 pages, 13½ ins. by 10 ins. Budapest: Erdélyi. Price £2 10s.

### *"The Metropolis of the West."*

An important service to Bristol trade and industry is rendered by the publication of the "Bristol Chamber of Commerce Year Book, 1913," which has been edited and compiled, with authority of the chamber, by its secretary, Mr. W. J. Hilliar, F.C.I.S. Readable articles summarising the history of Bristol and describing its present position in commerce and industry are accompanied by trade indexes, in English, French, German, and Spanish, of the members of the British Chamber of Commerce, arranged alphabetically under the trades they represent, addresses, telephone numbers, telegraphic addresses, and code in use being, of course, included. The book represents an excellent idea, well carried out, and such a good beginning is likely to see important developments.

### AN ARCHITECT'S HOUSING SCHEME.

At a meeting of the Oldham Housing and Town-planning Committee Mr. F. Thorpe, Licentiate R.I.B.A., read particulars of a scheme of housing he had prepared. If the only difficulty in the housing problem. Mr. Thorpe said, were the financial one of providing healthy homes, with suitable accommodation at normal rentals, then this would present no insuperable obstacle to a corporation, as indeed parks are often bought with their attendant upkeep, etc., but in the housing question there is the dealing fairly with the property owners who are large ratepayers, and the creation of competitive interests against those who are compelled to subscribe largely to their competitors' schemes. The community is busily engaged in paying heavily towards the cost of what may be termed the working expenses of bad housing. It is a fact that the direct cost to ratepayers would be less expensive by spending on improving housing conditions than on hospitals, lunatic asylums, workhouses, and the like. Apart from the direct cost, there is the indirect cost to societies and ratepayers through the loss of employment, sickness, and death due to preventable disease.

Local authorities and private enterprises are often rendered inactive in solving the housing problem by reason of their by-laws requiring new streets of an unnecessarily expensive character, finished all alike, whether heavy traffic road or for pedestrians only. The accumulative effect of these and other artificial obstacles, placed in the way of municipal housing schemes, is to necessitate in many cases that either cottages should be let at higher rents than would otherwise be feasible and desirable, or that a burden should be cast upon the ratepayers. The emancipation of the problem lies in the purchase of a large area of land and the erection of a number of cottages at one time, under one contract, such as the private owner is not generally prepared to undertake, as he

cannot obtain such favourable borrowing powers as a municipal authority. The Corporation might also encourage cottage building by leasing off small plots to private owners on terms far below what they would have to pay in leasing a small area direct from a landowner. The lessee would practically be a contributor as ratepayer to purchasing a large quantity in order to obtain a small piece.

In regard to the designs which he suggested as most suitable for the needs of the people and customs of Oldham, Mr. Thorpe said that for districts where the land was expensive he would suggest building in semi-detached pairs. This arrangement would at once save the need of the dark and objectionable back passages, give land to gardens, and by spacing the blocks say three yards apart a convenient and safe playground will be provided for the children between the houses. Cottage flats may well be erected in such blocks, without the objectionable common stairway, railed landings, and small yards, and lack of privacy, as in large blocks. Indeed, there is no outward evidence of the block containing more than two dwellings, as flats and two-storey cottages are exactly alike externally, excepting for an extra side doorway giving access to the upper dwellings. It will be found, he said, that the flats containing living room with range, food cupboard (ventilated direct from outside), coal place (with loose box receptacle), and w.c. and bedroom with small disconnecting and ventilating landing, can be well built, at a cost of £400 per block, that is £100 per dwelling, and thereby let at a rental of 3s. per week, after allowing for repayment of capital and interest, depreciation for repairs, painting, and rates and water. The two-bedroom cottages are similarly designed and may be let at 4s. 6d. per week inclusive. The three-bedroom cottages may be let at between 5s. and 6s. per week.

In the districts where land is cheaper and less congested, he would suggest erecting cottages in blocks of varying sizes. By careful selection of a plot requiring inexpensive foundations, a small garden suburb may well be made for working men's dwellings of varying types. It is found more desirable to mix the classes somewhat than house too many of one social position together, and, by effecting this, variation in design can well be obtained for the blocks, such as making gables to centre and end features where larger cottages occur. Of course, the cost of building has largely increased during the last few years, but he believed that with careful planning and reducing labour items on materials, and standardising the windows, doors, etc., a great saving could be effected. The local by-laws are in need of relaxation as regards new streets, back passages, height of rooms, yard walls and areas, passages, footpaths, outer walls, and drainage through yards of all cottages owned by the Corporation.

## OBITUARY.

### *The late Mr. Herbert Winstanley.*

Mr. Herbert Winstanley, architect, member of the Court of the Clothworkers' Company, left estate in the United Kingdom of the gross value of £67,335, of which the net personalty has been sworn at £65,884. The testator bequeathed £500 to the Royal Female Orphan Asylum, Beddington, and £100 to the Architects' Benevolent Institution.



# THE ARCHITECTS' & BUILDERS' JOURNAL.

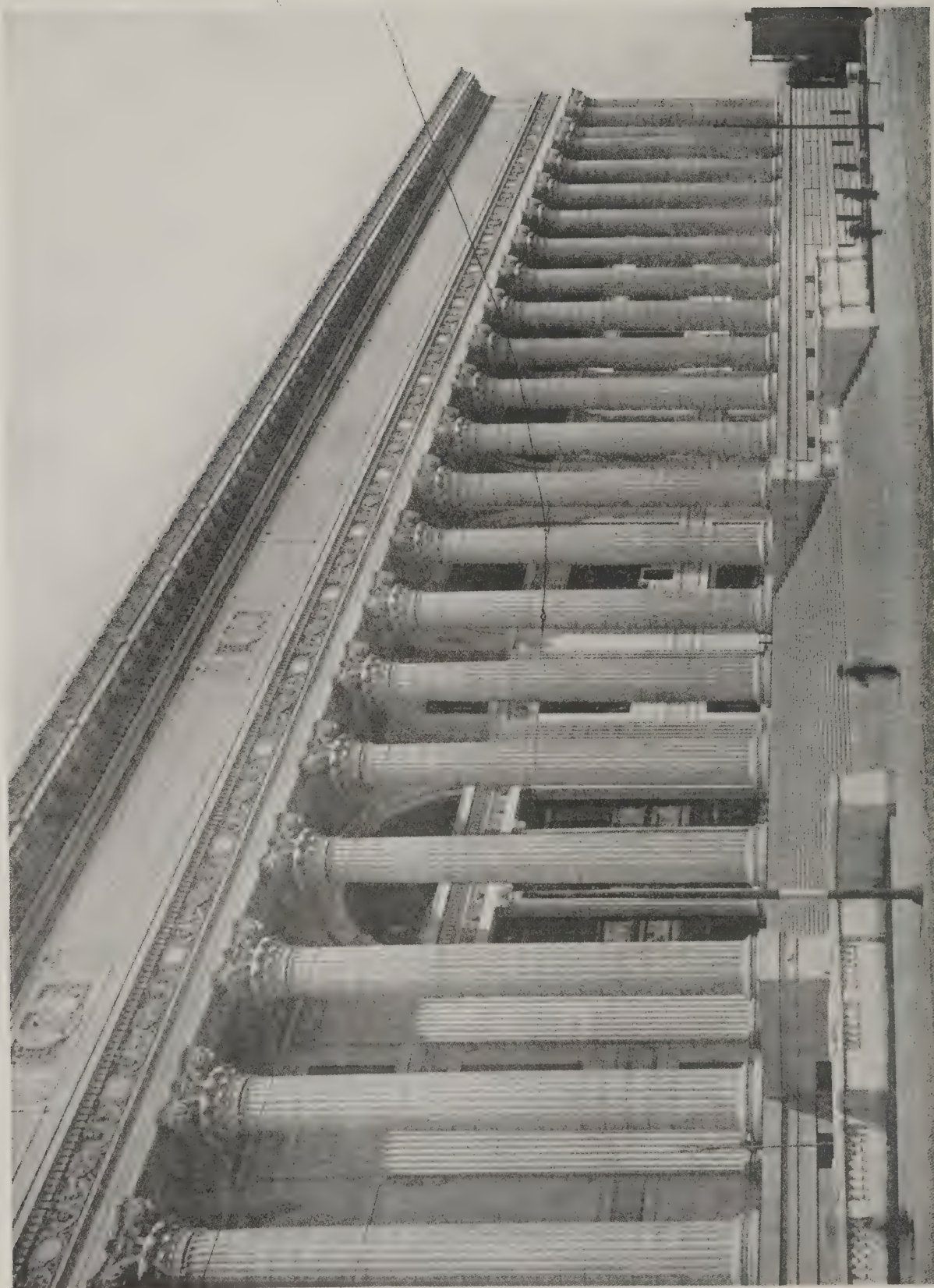
Wednesday, June 11, 1913.

Volume XXXVII. No. 961.

No. 37.



*(From Piranesi.)*



STATE EDUCATION BUILDING, ALBANY, NEW YORK. PALMER, HORNPOSTEL, AND JONES, ARCHITECTS.

(See page 613.)



# THE ARCHITECTS' & BUILDERS' JOURNAL.

JUNE 11, 1913.

CAXTON HOUSE, WESTMINSTER.

VOLUME 37. No. 961.

## Church Building.

IT has been absurdly and superfluously said that the death of Mr. John Oldrid Scott takes from us the last of the great Gothicists. Architectural scholarship to-day implies a more widespread knowledge of Gothic, and a more intimate acquaintance with its principles and its details than ever before. It is true, however, that increase of knowledge has had its wonted effect of checking enthusiasm. Not that familiarity breeds contempt, but because scholarship, when not too highly specialised, makes for clearness of vision and sobriety of assessment of relative values. It is now seen, as Mr. Thomas Hastings reminded us a week ago, that Gothic has long since spent its vital force. It can hardly be said to have survived the Reformation, which, of course, was a symptom of the Renaissance. The influence of Gothic as an emotional force must have been utterly dead by the time that Cromwell's troopers could find it in their hearts to stable their horses in Winchester Cathedral, and were unrebuked when they amused themselves by shooting at its sculptured decorations.

But Gothic, being dead, yet speaketh in the countless monuments of mystic piety and noble aspiration which we needs must cherish for what they symbolise, and therefore in no merely antiquarian relish for them as interesting survivals and records of the past. In France, where there is less veneration for the past than that which so sedulously preserves our ancient monuments from decay, the grand old churches are callously allowed to fall to cureless ruin, because there an outworn tradition is promptly discarded and forgotten. There the feeble protest that was raised laid most of its emphasis on art, and but little or none upon religion. In our own country the stress is the other way, and is sometimes rather disproportionate. That veneration for the religious aspect of a fabric may be carried a little too far may be inferred from a curious instance recently brought to the notice of the present writer. A candidate for the R.I.B.A. examinations sought permission to measure and draw a certain fine old Norman church. To his surprise and disgust, he was met with a curt refusal, the vicar declaring that he "could not think of allowing his church to be turned into a school of architecture." It is not clear whether this good cleric was obsessed by the sacrosanct character of the building, or whether his objection took the more mundane turn of mistrust of a young man in a hurry to use his ladder and careless in his disposal of cigarette-ends. Unhappily we have heard of instances in which confidence has been in these and in other ways abused, but these are even more rare than the refusal to afford facilities for studying early ecclesiastical work; most vicars gladly embracing such excellent opportunities for the association of work and worship. Perhaps the refusal marks their divorce. The vicar may believe, with Mr. Hastings, that the mediæval mason uttered a prayer with every chisel-stroke, but he implicitly denies that measure of grace to the modern student of architecture: unless, indeed, the clerical mind is exercised

less by fear of the falling-off from primitive piety than by that of the falling-off from rickety ladders.

It may be, however, that the death of Mr. Oldrid Scott does, after all, close a chapter in the history, not exactly of Gothic, but rather of the Gothic Revival, which, alas, was a different thing—the merest simulacrum of the noble buildings of old, and alien alike from the ancient and the modern spirit. One cause for the reversion to it—not an ostensible but an actual cause—was the debasement of the Classical style by the degenerate disciples of Gibbs and—*longo intervallo*—of Cockerell. Long before the Oxford Movement insisted upon Gothic as the only allowable style for a church, Classicism had become discredited by the hideous caricatures of it that disfigured our cities and suburbs. The pretentious portico, with its ponderous cracked columns and paltry pediment harbouring sooty grime and sparrows' coprolitic nests, led to a desolating interior, in which the charity-children's galleries, the high-backed pew with its tawdry curtains, the three-decker pulpit, the prodigious stove-pipe heating apparatus, and the star-spangled flat ceiling, were instantly fatal to the spirit of reverence, and, incidentally, to the type of building with which such monstrosities were associated. Equal mischief was done by the freaks and phantasies that occasionally afflicted exteriors—by the slavishly exact ("as far as the funds would allow") copies of "pagan temples," by a singularly bizarre taste in weather-vanes, and by such eccentricities, as, for instance, that of making a steele do duty as a steeple. No wonder that the sensitive High Church revivalists turned from such abominations with shuddering disgust—got as far away from them as they could, and sought salvation in Gothic, never foreseeing that so their last state might be even worse than their first.

There came a time when almost every person knew his "Parker" by heart, and insisted on every detail of his church being precisely in accordance with precedent and pattern; and those who were less learned or more modest were glad of the shop-made Gothic in which every item was, as it were, standardised and guaranteed correct. The Gothic Revival received its quietus from within. It could not survive the fungoid growth all over the country of wretched little cheap brickwork "Early English" churches, which did more than anything else to demonstrate the anachronism and vacuity of an antiquarian fad.

Wren, Hawksmoor, Gibbs, Cockerell, have shown how aptly the Classical style can be made to express the chaste dignity, repose, and even the severity of religion pure and undefiled; and surely this decorum, dignity, and restraint are more in harmony with the trend of modern thought and the current conception of religion than the fantastic mysticism of a phase or cycle that has had its day and ceased to be, and whose first fine rapture we cannot hope to capture. If, as Mr. Hastings said, the Classic style is equal to "solving the problems of modern life," it is surely qualified for the expression of religious aspiration.

J. F. D.



**The Late Mr. John Oldrid Scott.**

THROUGH the courtesy of his son, Mr. C. M. O. Scott, we are able to publish below a photograph of the late Mr. Oldrid Scott. It is not, unfortunately, a recent one, having been taken so long ago as 1893, but it is the only one available, and as such it serves to record an architect who did a considerable amount of good work in a very quiet way. Though well known to the profession by name, Mr. Scott never



THE LATE MR. JOHN OLDRID SCOTT, F.S.A., F.R.I.B.A.

thrust himself into notice. He was of an exceedingly retiring disposition, and disliked publicity. At the same time he kept abreast of the work of his day, and, as may be judged from his restored west front of Hereford and his rebuilding of Selby Abbey, carried out in a sturdy spirit the tenets which were handed down from his father, Sir Gilbert Scott. Some particulars of his career will be found elsewhere in this issue.

**The Protection of Old Buildings.**

WE agree with Earl Curzon, and disagree with Earl Beauchamp, respecting the proposal, under the Bill now being piloted through the House of Lords by the First Commissioner of Works, that the purchase of ancient monuments in order to save them from destruction or misuse should be left to local authorities rather than to the State. Earl Beauchamp's view is that ancient monuments are of great educational value, and the Government is anxious to impress upon local authorities the desirability of treasuring those relics that come within their area. Earl Curzon, however, is not so sanguine. The First Commissioner appears to be that local authorities would make good use of the Bill, and he conjures up no vision of these bodies raising money by loan or by means of an extra rate for the purpose of acquiring possession of an ancient monument. "His experience of local authorities was that they did not care twopence about the archæological value of ancient monuments. All they cared about was their possible use as a means of advertisement to the locality or of entertainment of the people." Being of very much the same opinion, we are glad to note that the Bill, as now reported to the House, has had one or two amendments added to it. One of these, put forward by the Earl of Plymouth, provides that the Commissioners of Works may, with the consent of the Treasury, purchase an ancient monument with money provided by Parliament; while another enables the Commissioners to make an order placing under their protection any ancient monument in danger of removal, as well as one in danger of destruction or damage from neglect or injudicious treatment. As the Bill stands it gives power to effect

a great deal of good in the way of preserving fine old buildings that are tumbling into ruin, or, what is even worse, are being restored out of all semblance to their original selves. And particular importance attaches to the action of the House of Lords in reinstating the clause by which the cathedrals and parish churches that are ancient and of archæological value are included within the scope of the Bill. We welcome this, as we feel that the fabric of a cathedral is just as much a natural possession as the fabric of a palace like Hampton Court. At the same time we fear it will make the Bill a very contentious one, and thus its passage to the Statute Book may be barred: whereas, without the ecclesiastical element (which we understood had been set aside for the time being), there was every likelihood of an excellent power being given into the hands of a Government department fitted to use it in the interests of the nation.

**Blemishes in the Beaux-Arts.**

IN an elaborate criticism of the beaux-arts budget in the French Parliament, M. Couyba demands that the decorative arts shall receive equal State encouragement with the others. Incidentally, he falls foul of the Ecole des Beaux-Arts, where, he complains, there is too much of what in our own country would be called pot-hunting. Masters and pupils alike concentrate their energies on the one vainglorious aim of winning medals. There are, he says, too many competitions and too many prizes; and some important tendencies of French art are ignored in the schools. He is particularly severe on the Prix de Rome, the course leading up to it being, he declares, exclusively theoretical, and quite out of touch with modern requirements. With regard both to the Ecole des Beaux-Arts and to the Villa Médicis, M. Couyba demands for the students greater liberty of thought and production and from the professors greater eclecticism. As to the decorative arts, there exists, he acknowledges, a Conseil Supérieur that is supposed to foster them, but does not. Its members do not include a single artisan, but that matters the less since the majority of the members are never convoked. There exists also a School of Decorative Arts, in which, according to M. Couyba, there is a hybrid system of education which converts into indifferent artists those who might otherwise have become excellent craftsmen: a kind of achievement in which our own polytechnics need fear no rivalry, only these rather seem to specialise on turning respectable carpenters into execrable architects. To the devotees who in this country cease not day nor night from hymning the praises of the French system of art education M. Couyba's discordant note will seem sacrilegious; but it is salutary to be occasionally reminded that there are spots on the sun.

**The Birthday Honours List.**

FROM the architectural and building point of view the birthday honours list includes no names that are of special interest. Mr. J. H. Lewis, M.P., Parliamentary Secretary to the Local Government Board since 1909, becomes a Privy Councillor; and among the new baronets is Mr. William Gwynne-Evans, who has contributed generously towards the scheme for incorporating University College in the University of London, and who presented to the British Museum the Arthur Morrison collection of Chinese paintings. Mr. Charles Allom, upon whom the honour of knighthood has been conferred, is a partner in the London firm of White, Allom, and Co., decorators, and was a member of the Royal Commission for the Brussels, Rome, and Turin Exhibitions. Knighthood is also bestowed upon Mr. Stephen Collins, M.P., who was for six years a member of the London County Council, and is head of the firm of Stephen Collins, Ltd., stone merchants and contractors, Vauxhall.



## THE SUBURBAN HOUSE: COMPETITION FOR ELEVATIONS.

THE great interest taken in our recent competition for plans and section of a suburban house better suited to the needs of a small middle-class family than the type which is usually adopted led us to decide upon a second competition for elevations based on the scheme placed first. When publishing the premiated designs, with others submitted in the competition, we pointed out certain defects which might be remedied, and some of our readers wrote criticising other details. Mr. Swash has taken this criticism under review, and has remodelled his plan in some respects. The revised scheme, on which the elevations are to be based, is published below. The prizes offered in the present competition are £5 5s., £3 3s., and £2 2s., for the designs placed first, second, and third respectively.

The drawings required are—

- Front elevation of a pair of houses.
- Back elevation of right-hand house.
- Side elevation of right-hand house.

The drawings should have the front elevation of the

pair of houses at the top, with the other two elevations side by side below. A scale should be included.

The drawings are to be to the scale of  $\frac{1}{4}$  in. to the foot, and may be in plain black and white or washed over and shaded in monochrome. They must not, however, be coloured.

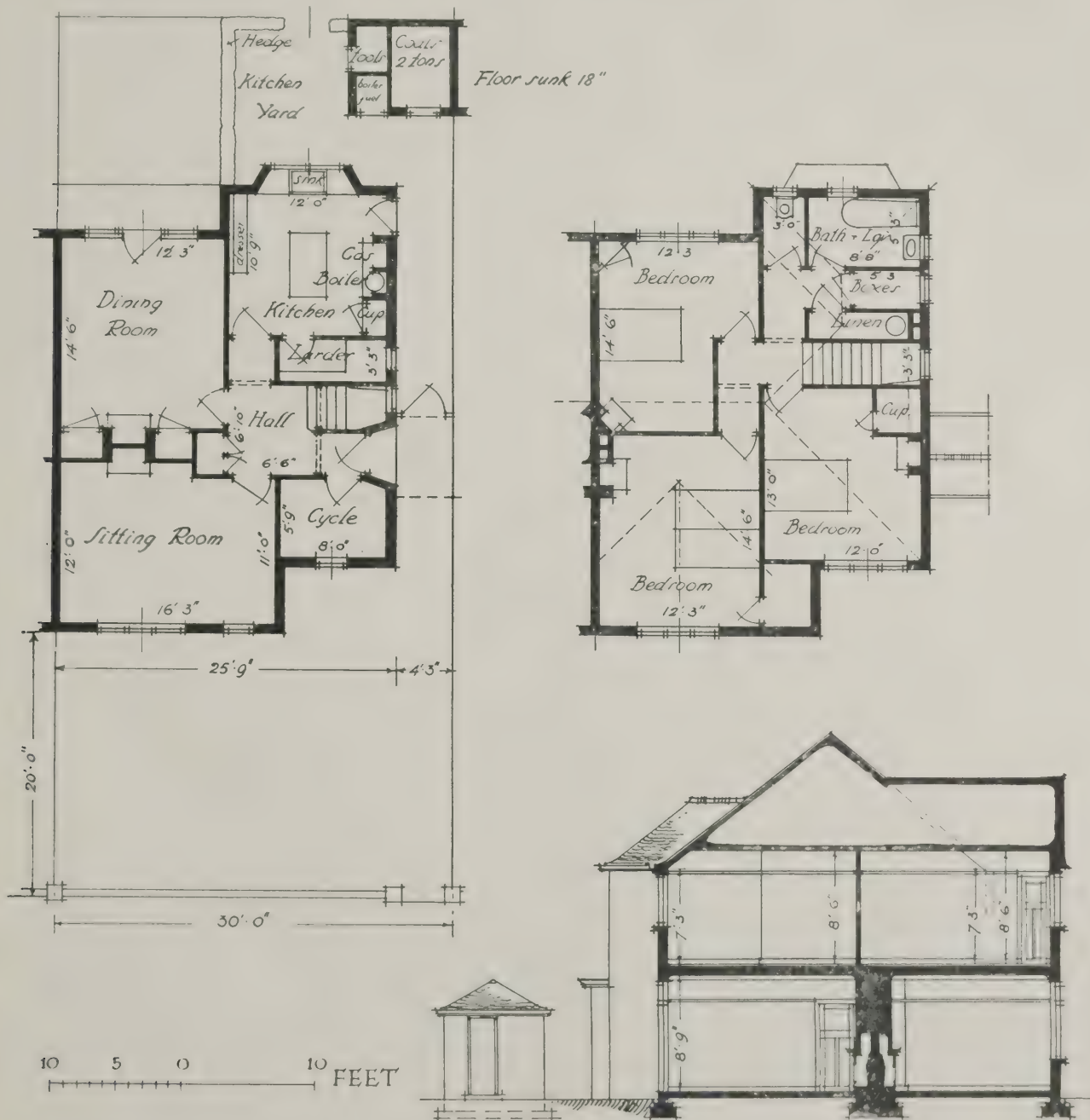
Drawings should be sent in a roll or packed flat, and will be returned to competitors in that manner, provided that a stamped and addressed tie-on label is sent.

Each drawing should bear the competitor's name and address in the right-hand bottom corner.

The style and material in which the elevations are to be carried out is left to the discretion of competitors, but it must not be forgotten that the houses are not to exceed in cost £450 each—i.e., £900 the pair.

Competitors must keep as closely as possible to the prize scheme shown on this page below, but slight variations in details—such as the size or position of windows—will not disqualify.

The inclusion of a porch over the entrance on the



PLANS AND SECTION OF SMALL SUBURBAN HOUSE PLACED FIRST IN COMPETITION (AS AMENDED).

FRANK S. SWASH, A.R.I.B.A., ARCHITECT.

side elevation is left to competitors to settle: it will add slightly to the cost, but possibly something can be modified to meet this. On the whole, we think that a porch extending across to the adjoining pair is a desirable feature. The house is intended to be built in accordance with the usual Urban By-laws.

Drawings are to be sent in by July 11th next, addressed to the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL, Caxton House, Westminster, who will adjudicate them, and whose decision will be final. The Proprietors of THE ARCHITECTS' AND BUILDERS' JOURNAL reserve the right to publish any of the drawings submitted in the competition in any form they may desire.

NOTE: Each design must have stuck on the back of it the coupon which will be found on page xxii. of this issue. A similar coupon will be given in all our issues up to and including the issue for July 9th, and any one of these can be used. Competitors may send in as many designs as they wish, provided that each has a coupon on the back of it.

### THE MUSÉE GALLIERA, PARIS.

ONE of the most remarkable buildings of modern Paris is the Musée Galliera, set in the midst of a garden not far from the Trocadero. It is the chief work of that talented architect, Léon Ginain, whose great façade to the Ecole de Médecine brought him into the front rank of the architects of his time. The Musée Galliera, curiously, is almost an unknown building to the majority even of architects who visit Paris. Of special interest, therefore, are the fine photographs of the building which have been specially taken for "The Architectural Review," and are published in the June issue, just out. Georgian interior decoration—the work of Sir William Chambers—is another attractive feature of the issue, which fully maintains the high standard set by former numbers.

### THE CHARM OF OLD CHELSEA.

SO vital is the charm of old Chelsea that not even the methods of topographical survey can entirely kill it. Yet such a book as the Survey of Chelsea, of which the second volume is now before us, necessarily partakes of the nature of a catalogue, in which the entries must be almost as businesslike as the list of the charms of the lady—"as, item, two lips, indifferent red; item, two eyes with lids to them." Mr. Godfrey, in spite of the limitations imposed upon him, has done much better than that; for while he writes with restraint, his description is never crabbed, dull, or unimaginative, and, at the same time, he never allows the topographical purpose to become obscured by the architectural and historico-literary detail in which his subject greatly abounds. He nearly always resists the temptation, which must often have been very strong, to become merely anecdotal or pseudo-biographical. In dealing with any house which has happened at some time to be the dwelling of a person of note, he usually contents himself with name and date, but on due occasion does not hesitate to enliven the record with an apposite or illustrative story.

Thus, coming in the course of his itinerary to No. 10, Upper Cheyne Row, where (when it was known as No. 4) Leigh Hunt lived from 1833 to 1840, and there wrote a number of articles for the "Edinburgh" and "Westminster" Reviews, produced most of his own essay in topography, called "The Town," established the "London Journal," struggled to continue the "Monthly Repository," wrote the poem "Captain Sword and Captain Pen," and perpetrated "The Legend of Florence" and three other plays, Mr. Godfrey cannot forbear reproducing Carlyle's oft-

"London County Council Survey of London." Issued by the Joint Publishing Committee representing the London County Council and the Committee for the Survey of the Memorials of Greater London. Under the general editorship of Sir Laurence Gomme (for the Council) and Philip Norman (for the Survey Committee). Volume IV. The Parish of Chelsea (Part II.). Published by the London County Council, Spring Gardens, London. Pages xviii. + 102 + 104 plates, 12 ins. by 9½ ins.



NOS. 91 TO 94, CHEYNE WALK, CHELSEA.





LINDSEY HOUSE, NOS. 95 TO 100, CHEYNE WALK, CHELSEA.

quoted description of Leigh Hunt's mode of living: "His house excels all you have ever read of—a *poetical Tinkerdome*, without parallel even in literature. In his family room . . . you will find half a dozen old rickety chairs gathered from half a dozen different hucksters, and all seemingly engaged, and just pausing, in a violent *hornpipe*. On these, and around them and over the dusty table and ragged carpet, lie all kinds of litter—books, papers, egg-shells, scissors—and last night when I was there the torn heart of a half-quartern loaf. His own room above stairs, into which alone I strive to enter, he keeps cleaner. It has only two chairs, a bookcase, and a writing-table; yet the noble Hunt receives you in his Tinkerdome in the spirit of a king, apologises for nothing, places you in the best seat, takes a window-sill himself if there is no other, and then folding closer his loose-flowing muslin cloud of a printed nightgown, in which he always writes, commences the liveliest dialogue on the philosophy and the prospects of man (who is to be beyond measure 'happy' yet), which again he will courteously terminate the moment you are bound to go." This catches Hunt in his most Harold Skimpoleish mood, and at the same time reveals the rugged old Scot at his limit of tenderness and toleration. The friendship between Hunt and Carlyle was surely due to the attraction of extreme opposites.

Carlyle—the Sage of Chelsea, as his contemporaries were fond of calling him, perhaps half-derisively—lived for nearly fifty years at No. 5 (afterwards No. 24), Cheyne Row, starting in 1834. It was here that one day, fuming with rage, he rushed into the presence of his wife and a lady friend and shrieked out an imperative demand to be told why High Heaven had ordained that a German idiot should be sent all the way from Weimar to pull the handles off Thomas Carlyle's cupboards. The explanation was that the German gentleman, calling on Carlyle with a letter of introduction, had been admitted to Carlyle's den, where he was received so dourly that, losing his nerve, he jumped up from his seat gazed wildly round the panelled room in search of the exit, seized a knob which he thought would let him out. It came off in his hands. He tried another and another with the same result, Carlyle all the time glaring at him murderously; and

when at length the alarmed Teuton grasped the right handle he fled down the stairs and along the street for dear life. The story—related as being entirely true—is, at all events, useful as affording a glimpse of the characteristic Chelsea eighteenth-century panelling.

In recent times Chelsea has swarmed with painters—Turner, Whistler, and William Bell Scott, the poet-painter friend of Rossetti, are among those mentioned in this second volume of the survey. The house at which W. B. Scott lived—92, Cheyne Walk—is thought to have been designed by Robert Adam, but Mr. Godfrey has found no evidence to that effect. The unpretentious Georgian houses, built of honest stock brick mellowed with age, and roofed in some instances with the original and time-tinted tiles, make a sweet appeal to the artist's eye, which is charmed again by the well-disposed and nicely proportioned windows, with their broad white frames: the inviting doorways with their traceried fanlights and sheltering hoods; the exquisitely placed stringcourse of brick or of stone, and the crowning cornice, plain or dentilled. The elements are all simple enough. It is their composition that scores.

Of the 103 plates comprised in the volume the great majority show eighteenth-century subjects. Rich in these, Chelsea is poor in earlier work. Mr. Godfrey is able to state, however, on the authority of Mr. Randall Davies, that the Arch House was for fifteen years occupied by Bishop Fletcher, and that one of his younger sons, John Fletcher, having been seventeen years old at the date of his father's death, must have spent the greater portion of his early life there. Born in 1576, and dying in 1625, he was, of course, that John Fletcher whose perfect partnership with Francis Beaumont produced the only poetical plays that are worthy of being mentioned in the same breath with those of Shakespeare. Chelsea's literary associations are therefore of respectable age.

Its historical interest centred in Beaufort House, which, getting its name from the Duke of Beaufort, who, as Henry, Marquis of Worcester, had acquired it in 1682, had been in the sixteenth century the home of Sir Thomas More. Plans of this Chelsea estate, which were published in the "Architectural Review" of March and May, 1911, are of remarkable interest, as, in





*Photo: L. A. V. Cashmore.*

THE GOLDSMITHS' HALL, AS REVEALED BY THE DEMOLITION OF THE G.P.O., ST. MARTIN'S-LE-GRAND, LONDON.

all probability, showing the actual ground plan and first-floor plan of More's house. Sir Hans Sloane purchased Beaufort House in 1738, and ruthlessly defaced it. The remains of it now existing consist chiefly of some part of the garden walls, which preserve a considerable amount of good Tudor brickwork. The stone gateway, designed by Inigo Jones, is now at Chiswick. Of Crosby Hall, of which the re-erection on the site of Danvers House (which More had given as his daughter Margaret's dowry to William Roper); was superintended by Mr. Godfrey, a full and authoritative account is naturally given. Its most interesting feature is the unique fifteenth-century design of the roof, which, after the oak had been cleansed from many coats of modern paint, was refitted with scrupulous care.

Lindsey House, which dates apparently from 1674, was in 1775 divided into half a dozen separate dwellings. The bay window and covered entrance to that known as No. 100, Cheyne Walk, are interesting as having been added by the late George Devey. At No. 98 lived the two Brunels, father and son, who between them gave a new impetus and a fresh direction to civil engineering. The original building occupying the site of Lindsey House was the principal farmhouse on More's estate.

About Turner's house, No. 119, Cheyne Walk, it is stated that the balustrade was put there by the painter himself. Mr. Godfrey remarks that if that is a fact Turner must have bought it second-hand, as it is apparently of earlier date than the transaction would seem to imply. That is not a very daring piece of guess-work, for it is impossible to imagine Turner buying anything new when he could get it second-hand.

One of the most interesting buildings architecturally is Argyll House, 211, King's Road, which was built by the Venetian architect, Giacomo Leoni, who came to England under the patronage of Lord Burlington, and practised here until his death in 1746, building also Moor Park, Herts, the Duke of Queensbury's house (now demolished) in Burlington Gardens, and the "Great House" at Carshalton. He illustrated some of his own designs in an appendix to his large folio

volume (published in 1726) on the architecture of Alberti.

Old Chelsea Church, and some other interesting matters, are reserved for a further volume. The book is rich in a variety of interest—architectural, historical, and literary. Its antiquarian value is greatly increased by the inclusion of the coats-of-arms of the families of note who have lived or owned property in the district; but the architectural interest is predominant, the fine series of plates including not only elevations, but interior views, plans, some excellent measured drawings, and a number of miscellaneous details—as of staircases, chimney-pieces, gateways, lead-work, iron-work, and so forth. In sheer ordinary interest, to say nothing of the many evidences of specialised scholarship, energetically applied, the book is a splendid vindication of the policy of the London County Council in associating itself with the Committee for the Survey of the Memorials of Greater London. The work has been performed in no perfunctory way, but with an enthusiasm which instantly communicates itself to the reader.

## THE GOLDSMITHS' HALL.

THE demolition of the old General Post Office and the clearance of the site has revealed the Goldsmiths' Hall in a surprising manner, as may be judged from the accompanying photograph—which we have had taken for purposes of record, as it is likely that new Post Office buildings will be erected on the site, and the Goldsmiths' Hall will then be shut in as hitherto.

The building was erected on the site of the old hall of the company (which is the fifth of the Twelve Great Companies of London) in 1829-1835 from designs by Philip Hardwick, R.A. It is rectangular, with fronts about 150 ft. in length and sides 100 ft. The western or principal façade—shown in the photograph—has a slightly projecting centre, comprising six Corinthian columns and some rich carving; the whole being of Portland stone on a granite plinth.

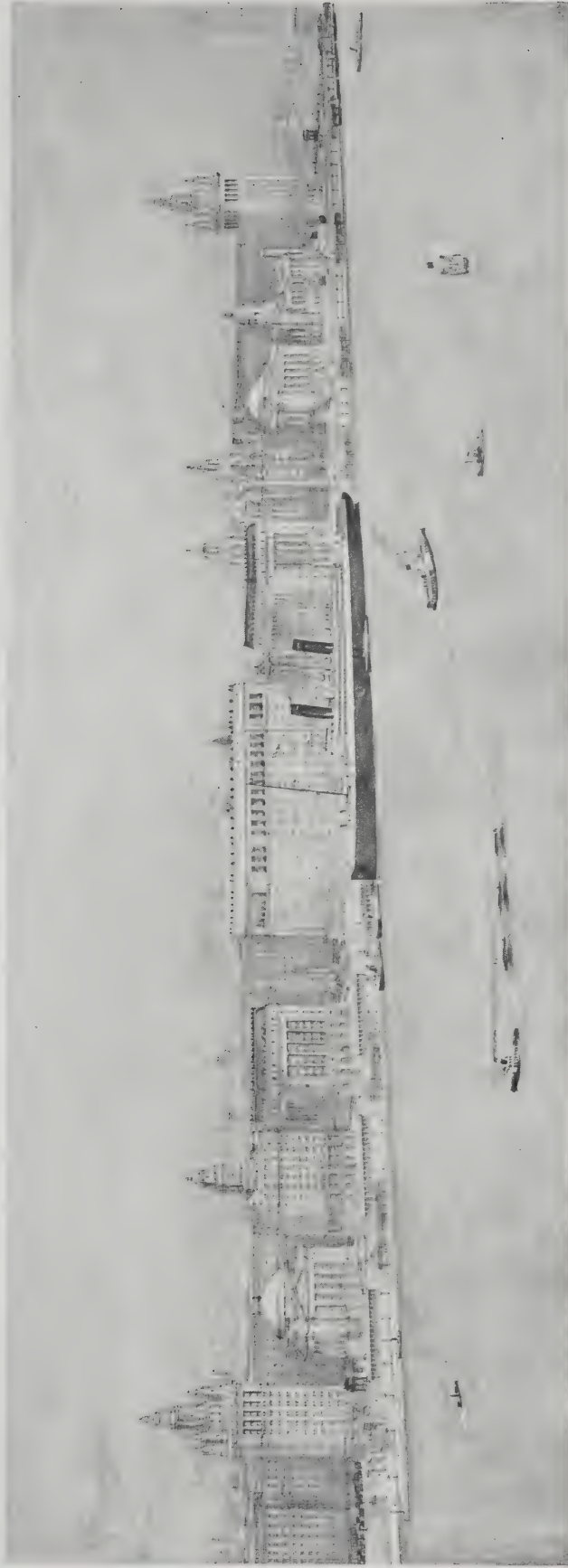




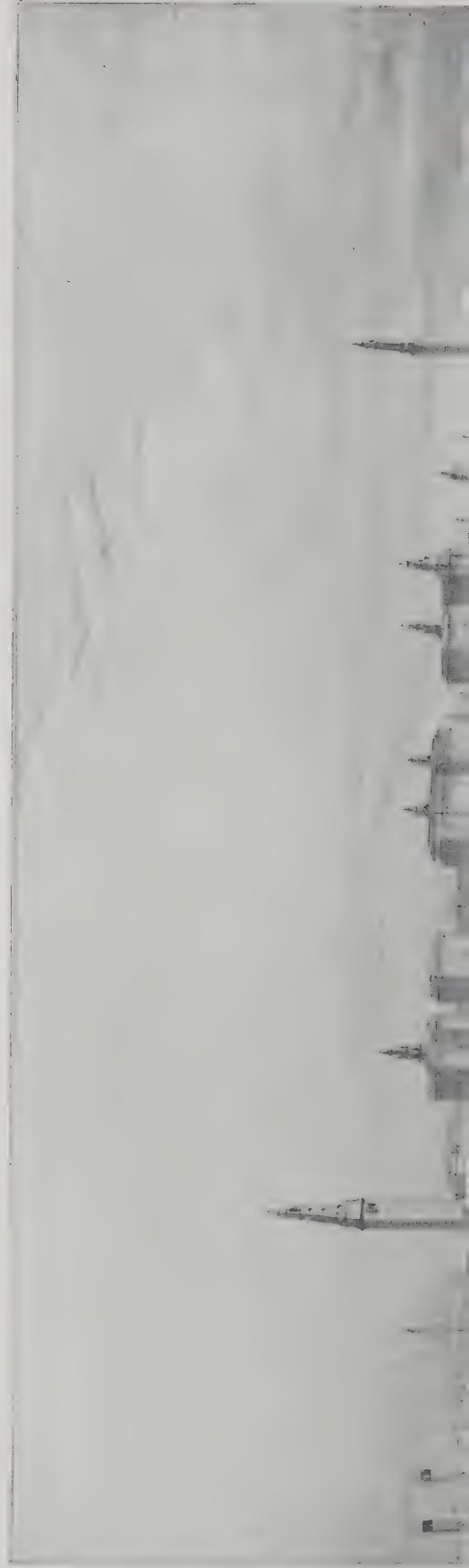
*Supplement to THE ARCHITECTS' AND BUILDERS' JOURNAL, Wednesday, June 11<sup>th</sup>, 1913.*

Existing Liver  
Building.

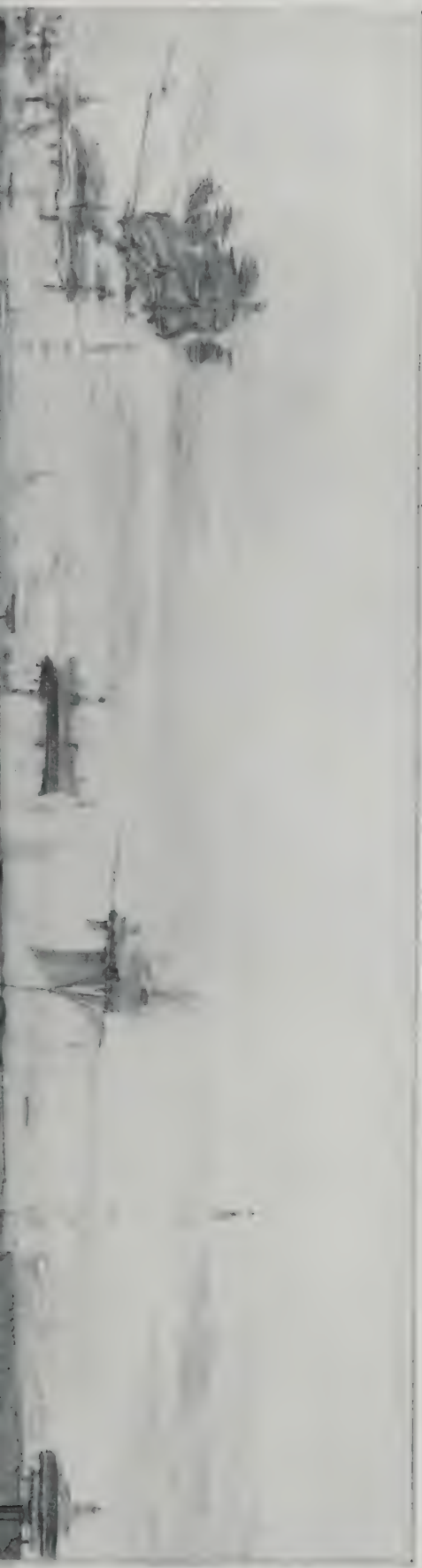
Existing Dock  
Board Building.



Hon. Mention : E. R. F. COLE.







First Prize: H. C. BRADSHAW.



Second Prize: B. A. MILLER.

SCHEME FOR THE DEVELOPMENT OF THE PIERHEAD AND LANDING STAGE, LIVERPOOL.





## OUR PLATES.

*Entrance Hall and Staircase, 40, Upper Grosvenor Street, London, W.*

WE reproduce on pages 620 and 621, as the twenty-eighth example in our series of working drawings by well-known architects, details of a hall and staircase recently reconstructed and re-decorated from the designs of Mr. Reginald Blomfield, A.R.A., F.R.I.B.A. As will be seen, the hall is flanked on either side by a series of coupled columns, the entablatures of which support a curved and coffered plaster ceiling. The floor of the hall is laid with black-and-white marble quarries picked out with black dots, and surrounded by a black marble border. The building work was carried out by Messrs. Trollope and Sons and Colls and Sons, Ltd., and the wrought-iron balustrade to the staircase was executed by Messrs. Thomas Elsley, Ltd.

*State Education Building, Albany, New York.*

This building has recently been erected from the designs of Messrs. Palmer, Hornbostel, and Jones. The frontage is about 656 ft., with a depth of 140 ft. It stands back 50 ft. from the general building line, thus allowing ample space for a formal lay-out in front. The main façade (of which we publish a view as the frontispiece to this issue) consists of a huge colonnade of Corinthian columns resting upon a substantial stylobate. The wall behind the colonnade is broken by a series of large semi-circular openings, which provide an unusually large window area. The entire façade is crowned by an immense attic storey, with a heavy projecting cornice, giving the building an appearance of great solidity and strength. It is a very remarkable example of modern Classic architecture as carried out in America. One is surprised, however, to learn from a description in "Architecture" that "the Commissioner's rooms . . . are treated in the Tudor style of Gothic" (!).

*The Mayfair Hotel, London, W.*

We illustrate on pages 615, 617, and 626 the Mayfair Hotel in Berkeley Street, Piccadilly, erected from the designs of Messrs. Richardson and Gill, A.R.I.B.A. The accommodation on the ground floor consists of a lounge hall, with convenient cloak-rooms and offices, a dining-room for one hundred guests, with private dining-rooms and services. The basement contains a large well-lighted billiard-room and smoking-room in the front portion, and kitchens and sculleries and plate-rooms at the back. Advantage has been taken of the level of the ground at the back to place the kitchen above ground. On

the first floor, overlooking Lansdowne House, is the drawing-room. The remainder of the first floor is arranged into private suites, as also are all the floors up to the sixth. It is interesting to note that the hotel contains no fewer than eighty-four bedrooms, in the provision of which considerable difficulty was found, the site being only 36 ft. wide by 106 ft. deep. The building is constructed externally with Portland stone and Cornish granite.

*Scheme for the Pierhead, Liverpool.*

Every year Sir William Lever gives two prizes in the Department of Town Planning and two in the School of Architecture, at Liverpool University, for the solution of some improvement problem connected with Liverpool. This year he chose the landing stage and pierhead and its very inadequate approaches. He suggested that another small dock should be filled up and new blocks of offices be built on the site so formed, together with a great Atlantic Hotel. The town planning students first set to work and produced a plan for the scheme, and the architectural students, adopting their plan, then designed the architectural treatment. We illustrate the three prize-winning designs on the Centre Plate in this issue. A great difficulty of the problem was naturally the existence of such structures as the Liver building and the Dock Offices. The awards were as follows: Town Planning Prize: 1st (£15), H. O. Burroughs; 2nd (£10), J. M. S. Bogle. Architectural Prize: 1st (£15), H. C. Bradshaw; 2nd (£10), B. A. Miller; 3rd, E. R. F. Cole. Interesting features of Mr. Bradshaw's scheme are the great campanili standing as sentinels cutting off the monumental part of the approach from the rest of the town. These campanili are quite big enough for offices like the Metropolitan building in New York. Between the towers and alternating with the existing buildings are suggested designs for an Atlantic hotel, a Customs House, the Cunard Offices, and various other official or commercial buildings. A frontage of gardens with statues is allowed for along the line of the river Mersey, and the floating bridge has been absorbed.

*House at Westcott, near Dorking, Surrey.*

This house, illustrated on page 619, is now in course of construction, from the designs of Mr. Ernest Newton, A.R.A., F.R.I.B.A. The bricks for the facings are from Reading, brighter coloured ones being used for the quoins and dressings. The roof is tiled, and the woodwork generally is painted white. Mr. Hughes, of Wokingham, is the builder. The drawing from which our reproduction was made is included in the present Royal Academy Exhibition.



SCHEME FOR DEVELOPMENT OF THE PIERHEAD, LIVERPOOL: PLAN PLACED FIRST. BY H. O. BURROUGHS.



## HERE AND THERE.

IN considering the work of some architects who have risen to affluence and distinction, we are frequently confronted with the enigma of their early work. This is a case where, in the absence of a "Truth" Fund, one must keep the pen well under control, but the mere mention of the above fact will recall to many readers the astonishing change that has come over the designs of some architects who now occupy prominent positions in the profession, and have long since been successful enough to build themselves pleasant houses in the country. The taste of most people is in a state of flux, primarily because of a certain number of restless beings in a "forward" movement which consists, paradoxically, in looking back, and, unless we be hide-bound, it must necessarily happen that things which had no attraction for us, say, ten years ago are now eagerly sought after, while, similarly, the treasured ideas of a past decade are regarded with indifference, if not looked at positively askance; so that we ought to make due allowance. There can be no doubt that an artistic conversion has taken place in certain cases; an old chair has saved an architect's life, and he has never been the same vulgar man since. But this will not bridge the gulf that separates the early from the later work of certain other architects, and we are left with the inevitable assumption that there has been a "ghost," or, possibly, a succession of these beneficent workers behind the scenes, whose presence not infrequently becomes so obvious that concealment is no longer possible. It is sad that we have thus to depreciate a man's reputation, but there is no other way out of the puzzle.

\* \* \* \*

Public bodies are responsible for many architectural offences, and among these must surely be counted the band-stand which is usually provided for the delectation of the public in their hours of leisure. There is no burking the fact, the customary design of these structures preserves all the worst qualities of the Mid-Victorian period. Cast-iron here disports itself in a maze of intricacy, every bracket being a study in floral elaboration, every cresting—and there are many—adding its profusion to the spikiness of the whole: the ignoble effect being completed by a complexity of varnished pitch-pine and garish paint. There is, of course, no other explanation of such an iniquitous design than that it is produced by and for people without taste. There is not the slightest reason that a band-stand should not be a very elegant structure. It has, indeed, every possibility of being so. The governing requirements are few and simple, resolving themselves practically into a raised floor for the bandsmen, with a canopy sounding-board overhead, as required in a position where people are all around, or, if at one side of an enclosure, some sort of hollowed space with a concave surface to reflect the sound outwards. I do not recall ever having seen a band-stand in the open which could evoke even the mildest approval. They all seem to be turned out of a similar mould, the chief defects of which are a non-recognition of form and an over-elaboration of ornament. Yet, when you come to look into the matter, a most delightful pavilion is possible. Satisfactory form is the first essential. A band-stand forms no part of a building, and a certain amount of license might therefore be allowed in its design—such as curved lines in the supports: but there must be strict simplicity. As it is, we are given a structure which seems originally to have been designed by a Chinese pagoda specialist who took in Switzerland on his way to the Midlands. In the case of recessed band-stands, we find much better results, perhaps because these are not stock patterns. I recall, for instance, an excellent one on the front at Lucerne, carried out in

reinforced concrete. It bears the trail of New Art in some parts, but taken altogether is a very successful effort. After all, if examples be needed from which to draw inspiration for a band-stand, there are plenty at hand. That garden pavilion in the grounds of Nero's villa, illustrated in this Journal not so long ago, is one which comes to my mind at the moment of writing, and many of the designs of Sir William Chambers offer abundant suggestion. There is, in fact, no lack of examples if designers of band-stands only cared to look for them.

\* \* \* \*

An extended familiarity with the advertisement pages of American trade journals has deadened my soul to an altruism that lurks in the guise of Business—"We secure contracts for you. We fill the demand. You get the profits"—but there is one among them, devoted to the interests of concrete and manufactured building materials, which represents The Complete Advertiser, anxious to "do it now" and to get "right there." Such is "Rock Products," which pours out in its thousands from Chicago, Ill., every month. On one page, in big letters, I am told to "read every word of this advertisement: it contains a special message for YOU." Acting on this advice, I have carefully studied the whole of the contents from cover to cover, and I rise from the ordeal with the conviction that, if I had a life-interest in concrete and manufactured building materials—which unfortunately I have not—I should be taking a criminal hazard in disregarding all the advice that is here given gratuitously and all the goodheartedness which expresses itself in capital block lettering. There are constant requests to write for Bulletin 32J and Catalog 4, and the latter spelling serves to point out other Americanisms, such as center, marvelous, color, and located. But it is only when we begin to study the detailed particulars that the essential character of the advertisements begins to impress itself upon one. Thus, the "Alright Cement," we are told, is made right, sold right, works right, wears right; and the same quadruple method is adopted in the case of Mitchell lime, which disregards grammatical exactitude in emphasising the all-important facts that it slakes fast, yields more putty, lays more brick, and spreads easy. The personal element clamours for notice. On almost every page a prominent announcement shows what it means to you, affirms it will pay you, wants to know whether you are open to a proposition. In this country readers are politely asked to mention their journal when replying to advertisers, but the American equivalent is more direct; "Tell 'em you saw it in 'Rock Products,'" being displayed at the bottom of every page. In brief, the idea is to cajole with colloquialism. "Drop a postal for Booklet J," "Here is the most valuable handbook ever published for the man interested in motor trucks," "Let us tell you about Side-walk Black"; these are a sample of advertising talk, which is garnished with an abundance of superlatives, thus—"As good as the best, and better than the rest," "We manufacture the strongest lime in Ohio," "Motor colors: you can't fade 'em. Best for the architect because purest: best for the contractor because they go farther," "The Badger mixer is simplicity simplified," "Stop! Look! Listen! The BiganLitle Mixer—a mix a minute: smaller than the other big mixers, larger than other small mixers," "Lower priced than common shingles and far prettier—that's our Ornamentile Style B roofing: when once down your house is roofed to stay," "If you haven't tried our elevator buckets and screens, a good time to start is right now." Here, indeed, is the live advertiser, ready to go right on, and boost himself blue in the face.

UBIQUE.





THE MAYFAIR HOTEL, BERKELEY STREET, PICCADILLY, LONDON, W.  
RICHARDSON & GILL, ARCHITECTS.

(See page 613.)







THE MAYFAIR HOTEL, BERKELEY STREET, PICCADILLY, LONDON, W.: DETAIL OF FAÇADE.  
RICHARDSON AND GILL, ARCHITECTS.

*(See page 613.)*







GARDEN ELEVATION

*Approved Plans for St. Barclay's  
Oratory  
Scale 1/4" = 1'-0"*



GROUND FLOOR PLAN

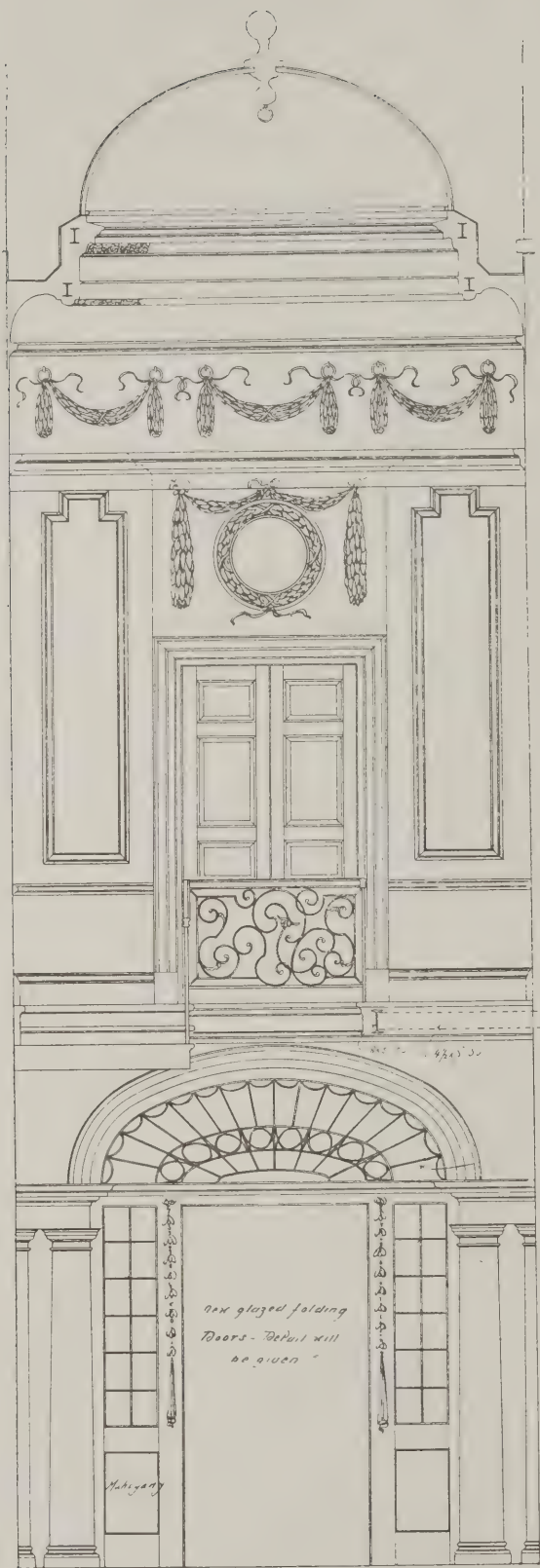


FIRST FLOOR PLAN

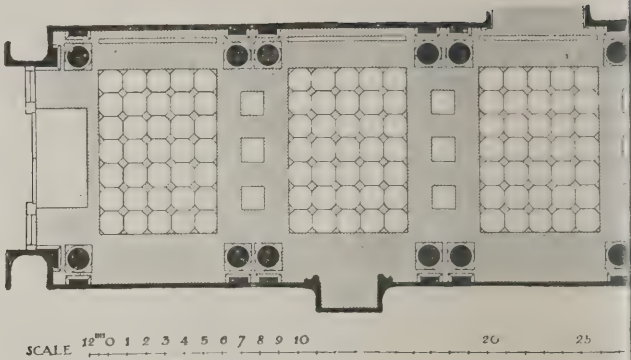
*Ernest Newton*

MODERN DOMESTIC ARCHITECTURE. HOUSES OF INTERMEDIATE SIZE.—XII. ERNEST NEWTON, A.R.A., F.R.I.B.A., ARCHITECT.

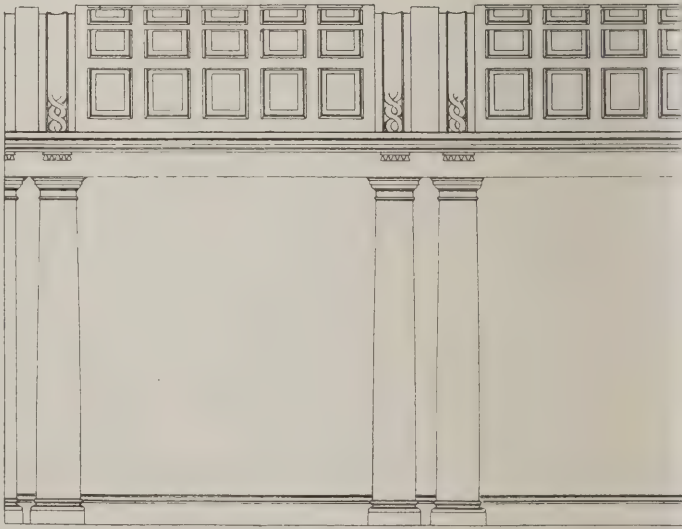
(See page 613.)



Cross Section Looking N.

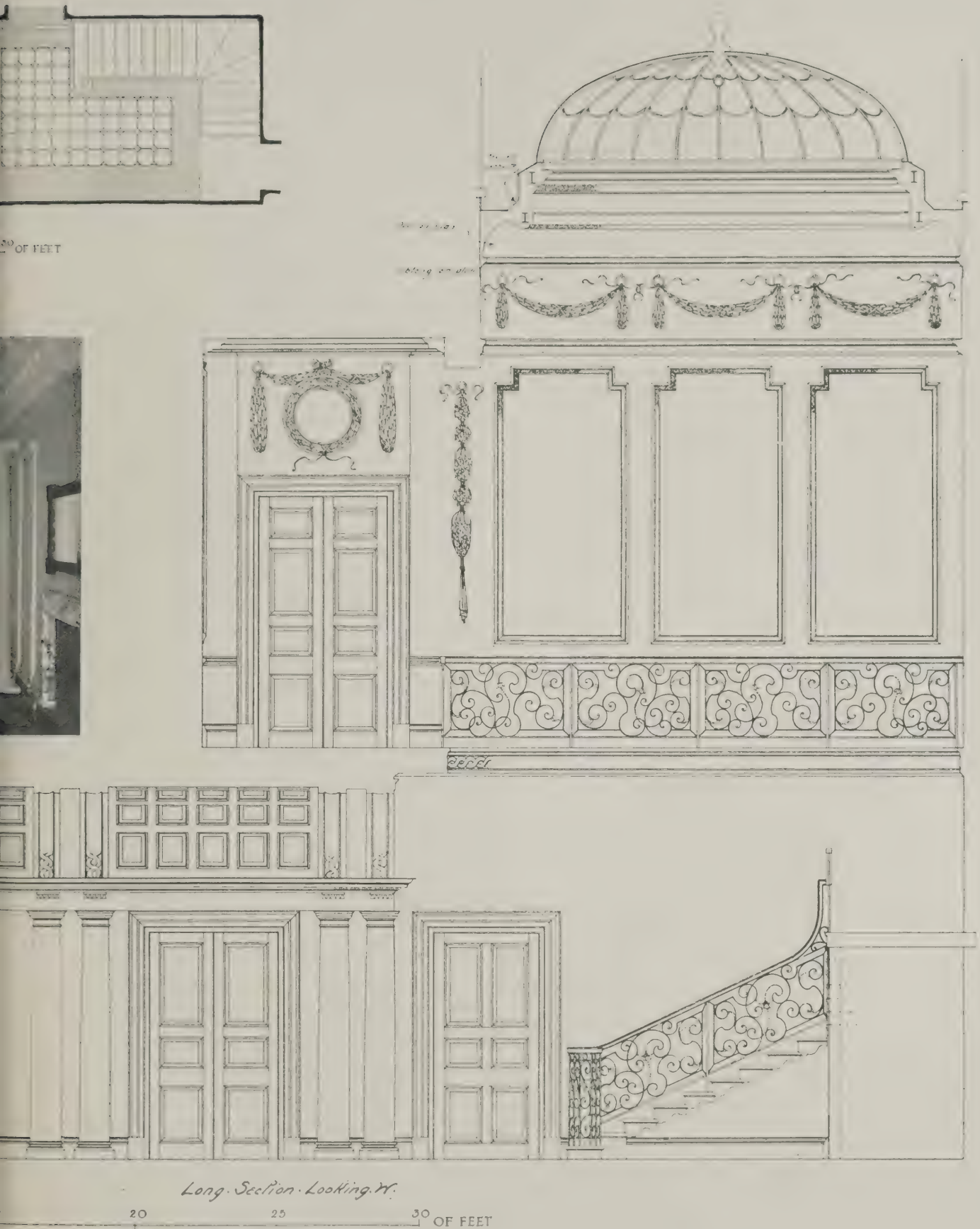


SCALE 12" 0 1 2 3 4 5 6 7 8 9 10 20 25



SCALE 12" 0 1 2 3 4 5 6 7 8 9 10





ONS TO MAIN STAIRS AND HALL, 40, UPPER GROSVENOR STREET, LONDON.

D, A.R.A., ARCHITECT.

(see page 613)

## THE PERIL OF ST. PAUL'S CATHEDRAL.

SIR FRANCIS FOX has delivered to the Dean and Chapter of St. Paul's Cathedral a further report—supplementary to the report he made towards the close of last year, when he dealt mainly with the danger threatened by the tramway scheme, which was thereupon abandoned—on the condition of the fabric, and a committee of experts has been appointed to consider it. Work on the buttresses and the main piers is proceeding steadily. The following passages from the report will show that important conclusions have been established as a result of the thorough investigations of the past six months.

### *Cockerell's Memorandum of 1831.*

In order to ascertain whether the Corporation of London had any records of the nature of the subsoil adjacent to the Cathedral (says Sir Francis Fox) I placed myself in communication with the engineer to the Corporation of London, Mr. Sumner, and he was instructed to furnish me with any information in his power. He had a careful search made among the archives of the City of London, and found the original plan of the sewer which was proposed to be made on the south side of the Cathedral in 1831, on which also is indicated the shaft in the street referred to by Mr. Brunel and Mr. John Rennie in their protests of that date. It appears that on August 24th, 1831, the Commissioners of Sewers appointed Mr. Telford, Mr. Brunel, and Mr. Acton to meet and confer with the representatives of the Cathedral, Mr. Rennie, Mr. Smirke, and Mr. Cockerell, to report their opinion on the construction of the sewers. There is a memorandum by Mr. Cockerell, dated September 1st, 1831, in which he states that a shaft, or well, in close proximity to the South Porch, was sunk 31 ft. below the street level; that the bottom was filled with sand and water, which came in in such quantities that the workmen were compelled to stop work, the sand falling from and undermining the sides. He observes that "on the north side of the well, towards the Cathedral, the sand has come in in greater quantity." Mr. George Rennie, writing on September 2nd, 1831, says, "The sand is a quicksand, and therefore dangerous to the Church." Mr. Cockerell writes on September 6th, 1831, that "at a meeting of five of the six persons to-day, Mr. Brunel coincides in a great measure with them respecting the operation, their opinion being that great risk is incurred to St. Paul's Cathedral by the present line of sewer. The sand is so loose as to run through the fingers. The opening in the bed of sand has given vent to the water in the sand, necessitating a steam engine to keep the sewer already building dry. The excavation to the south of the Cathedral is inundated with running sand and water . . . it is impossible to retain the sand; consequently it is feared that much more than the contents of the sewer, 6 ft. by 7 ft., is removed, and already damage may have been occasioned, the continuing of it seems obviously fraught with the utmost peril to the Cathedral." In consequence of this, on September 21st, 1831, the Commissioners of Sewers "ordered the shaft near the South Transept of the Cathedral to be filled up forthwith and be made secure, the sewer to be diverted." The same quicksand was encountered in the excavations for the warehouses on the south side of the street, particularly those at the corner of Godliman Street.

### *Dome and Walls Out of Truth.*

The plumbing of the dome and walls has been carried out on several occasions, with the result that they are found to be out of truth in different places, generally in a south-westerly direction. The amount of divergence would be negligible were the fabric at rest and the core of the walls and piers intact, but though the movement is not in itself serious at present, still it is imperative that it should be stopped, otherwise

it is only a question of time when danger will be reached. In consequence of the tilting of the eight main piers of the dome, due to the excessive and unequally distributed pressure on the foundations, the main piers in places have been seriously cracked and require attention.

### *Drum and Dome.*

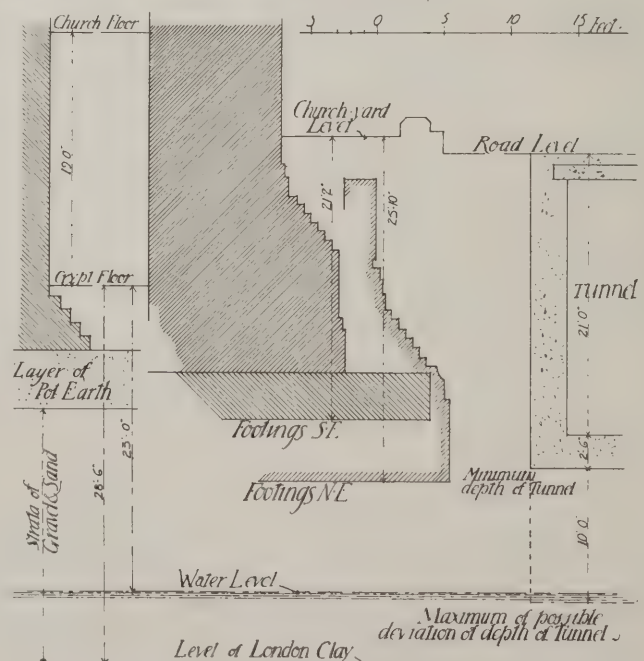
The buttresses to the drum of the dome are thirty-two in number, of which twenty-three are cracked, those to the south-west being very seriously disintegrated. In the case of No. 1, when a lantern was held on one side of the buttress (which is 4 ft. 6 in. in thickness) the light could be seen from the other side. I find that these buttresses have only a facing of ashlar, the inside being apparently small rubble thrown in more or less loosely. Both the outer and inner walls of the drum itself are also cracked, and have been pointed up in years gone by.

In the South Transept walls serious cracks have occurred, and some ten years ago the heavy iron tierods already referred to were fixed to overcome the motion. This, however, continues, as is proved by numerous "live" cracks in the cement. "Telltails" are being fixed in many parts of the Cathedral; some of these, which have been put in position for only a month, are already cracked.

### *Foundations.*

To excavate down to the foundations is naturally a subject for much hesitation, for fear of further disturbing the equilibrium of the Cathedral; but I am informed that they are generally four feet six inches below the Crypt floor, the bottom of the wall at the east end being considerably lower. I have been furnished with a drawing giving the depth of the foundation of the South Transept and also of the buildings erected a few years since at the side of Godliman Street. From this and other drawings it will be observed that the excavation for these buildings was twelve feet below the footings of the Cathedral, and we know from records that they were in quicksand, and that pumping was going on. The sand having once been disturbed continues to move slowly away, probably on the outside of the deep sewer. The Cathedral, though standing immediately, as I am informed, on pot earth, gravel, and sand, is underlaid by wet sand and gravel (the level of water depending, more or less, on the rainfall), for a depth of about five

### ST. PAUL'S CATHEDRAL Foundations





to six feet above the London clay. The strata of wet sand and gravel constitute an unreliable and unstable condition of affairs, which requires a remedy.

Naturally this somewhat disquieting report by so eminent an authority as Sir Francis Fox commands urgent and close attention; and it would not be surprising to hear that, as a result of the conference of experts to which it has been submitted, extensive underpinning operations, similar in character and thoroughness to those employed at Winchester, will have to be undertaken. The cost would probably be enormous; but the salvation of the metropolitan Cathedral—London's solitary monumental work—is surely worth all the money that the necessary work requires. The accompanying sketch of the Cathedral foundations will be examined with extreme interest at the present crisis.

## CORRESPONDENCE.

*The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents.*

*Correspondents are asked to be brief, and to write on one side only of the paper.*

### *The Real Renaissance.*

*To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.*

SIRS,—Your very interesting leading article on Mr. Thomas Hastings's paper on "Modern Architecture" compels agreement with its general argument; yet I think it rather errs in excess of eulogy. May I be allowed to put forward a few comments that occurred to me as I listened to the paper, and that may possibly possess some interest, as being, I suppose, fairly typical of average commonplace opinion in these high matters?

Coming all the way from New York to read a paper to the R.I.B.A., Mr. Thomas Hastings might conceivably have set before us something that was better worth so long a journey. It seems rather ungracious to say it, but his paper did not appear to me to be at all prolific of interest. To expect anything either very new or very definite on so trite yet so vague a theme as "Modern Architecture" would be too exacting; but from an architect of such eminent standing his hearers were justified in anticipating some freshness of treatment, some personality in the point of view, and in these respects we were rather disappointed. In choosing to deal with his subject on broad philosophical lines Mr. Hastings perhaps felt, with native modesty, that the other American architects who within recent years have been so gladly heard at Conduit Street had really exhausted the practical issues—had told us all that we might care to know about American architecture as it is materialising. Certainly it is interesting to know what American architects are thinking, as well as what they are doing; and it may be presumed that Mr. Hastings presented the American conspectus as clearly and as authoritatively as it could be shown. Nevertheless, in spite of the admirable dexterity with which he handled his abstractions, he did not invariably succeed in avoiding obscurity.

Generally speaking, the paper was remarkably free from the cant and jargon which make many architectural disquisitions unendurable. Only in one instance did he yield to the besetting temptation to become dithyrambic. In accounting for the lifelessness of modern Gothic, there is really not the slightest need to exalt the fourteenth-century mason to a pinnacle of piety. Yet Mr. Hastings, following a mawkish tradition, says of him, as he pictures him carving a capital: "Perhaps doing penance for his sins, he praises God with every chisel-stroke. His life-interest was in that small capital. [Mr. Hastings was doubtless quite oblivious that this comes perilously near to punning.] For him work is worship, and his life is one continuous psalm of praise." Very pretty indeed, but

it strains credulity. Surely it would have been quite sufficient to say that modern Gothic is an anachronism and have done with it.

In insisting on the prepotency of the Renaissance the lecturer might have made it more clear that he did not use the word in the narrow and restricted sense in which it is regarded as a mere label for a particular type of architecture; but that he took the larger view should be clear enough from his prediction of a modern Renaissance in the near future, when "we shall be guided by the fundamental principles of the Classic."

And so he at length arrives at something in the nature of a constructive policy; for from this it may be inferred that the lecturer realises the fatuity of interpreting the Renaissance in any sense inferior to that of a great and still vital world movement, fertilising all thought and energising all action, and influencing, especially, all art. We have got too far away from its fundamental principles, and he would have us go back to the well-spring for fresh draughts of inspiration. We must re-study those principles in the light of our present knowledge, of our accumulated experiences, of our many failures and our scant successes, and we shall have enough courage and character to interpret and develop those principles in accordance with the spirit and the circumstances of our own times. So shall our architecture take on, if not a national, at all events a distinctive, time character, but it will do this automatically, just as a man's handwriting or his literary style, no matter how diligently he may have "played the sedulous ape" to some impressive model, reveals his personal and racial idiosyncrasies. Temperament, climate, and the time-spirit render superfluous the spectacle that one of the speakers in the discussion thought so interesting—that of a nation seeking for a style of architectural expression. The search would be vain, and we should be more sanely occupied in trying to shake off the shackles of our narrow insularity, our almost parochial traditions, than in self-consciously endeavouring to forge them afresh. Freedom and breadth are of the essence of the Renaissance—but it is a freedom that "broadens slowly down from precedent to precedent," a breadth that is a natural and legitimate expansion. The Renaissance itself was an expansion rather than a re-birth, and in forecasting a modern Renaissance Mr. Hastings surely meant that the force of the movement, so far from being spent, is gathering strength for a more definite and more harmonious expression of the spirit of our times than is as yet visible. The nucleus of the modern Renaissance will remain the same. Its character will be cosmopolitan, but its heart and soul will be Greek, because Greek art summarises and comprehends all that is noblest in form, detail, and composition.

London, S.W.

HELLENICUS.

### *The Cheap Cottage.*

*To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.*

SIRS,—It will serve no good purpose continuing "personal bickering" in connection with this subject. I am sorry for Mr. Potter's failure to discover a flat reinforced concrete roof which will remain watertight. There is certainly nothing to learn when the argument ends with "it cannot be done."

However, I have had constructed in my lattice truss system flat roofs of reinforced concrete on factories and other buildings which are perfectly watertight, and have remained so for some years. We have also elevated reinforced concrete sewage tanks exposed on all sides to the weather, which carry thousands of gallons of water at considerable pressure, and have also been in operation several years and yet are perfectly watertight.

What about pontoons, water towers, etc., built of this material?

York.

WM. J. SWAIN.



## BUILDINGS FOR SMALL HOLDINGS.

*In the JOURNAL for May 28th, page 560, the conclusions reached by the Parliamentary Committee on Small Holdings were briefly summarised; and in our issue for June 4th, on page 588, we gave the details of their recommendations as to the minimum accommodation for this class of house, together with observations on certain details of construction. After tabulating the dimensions as shown last week on page 588, the Committee go on to comment in detail on the constituent parts of such houses as they have prescribed.*

### *Small Dairies.*

**I**N all cases where cows will be kept on the holding, the Committee observe, a dairy should be provided, the size of which must depend upon the number of cows and upon the method of disposing of the milk—*i.e.*, whether it is sent away or is set by for making cream, butter, or cheese. They suggest 40 sq. ft. as the minimum size for a dairy, but this would not be sufficient for more than two or three cows, and should be proportionately increased if a larger number is to be kept, particularly if there is any probability of much milk being set.

### *The Parlour Question.*

In addition to the accommodation already described, a house for a small holding exceeding, say, 25 acres in extent, or for one of smaller size if the intensity of cultivation would justify the extra expense (as, for example, in the case of a market garden), might also contain a parlour, the minimum area of which the Committee put at 120 sq. ft., with dimensions about 12 ft. by 10 ft.

### *Extra Bedroom.*

On some holdings, in addition to the family, a lad or labourer will be required to work on the farm and live in the house, and in such cases an additional bedroom for a single bed should be provided; this extra bedroom can be brought under the main roof if there is a parlour on the ground floor, or built either over the dairy or fuel store, or part of the house-yard if there is no parlour.

### *Living-Room.*

This room, as the one in which the family will mainly live, is the room of greatest importance; it should be given the preference, therefore, in the matter of aspect, and the most careful attention in planning. The best aspect is towards the south or south-east, so that the room may have the sun during the morning. It is often an advantage for the living-room not to be too much exposed to the afternoon sun, though, where a south or south-east aspect cannot be secured, sunshine is of such great importance that a western aspect should be adopted. A living-room should never be planned facing north.

The minimum size already given—namely 180 ft. of floor area—can only be regarded as adequate if the room is well planned. Even then it represents about the smallest room in which the family life can be carried on without serious inconvenience or discomfort, and the Committee viewed several living-rooms of much larger size, the occupants of which highly appreciated the extra space.

The practical convenience of a living-room depends not only upon its size, but also upon its plan and arrangement; as to which some suggestions were given in the paragraph headed, "Some Constructive Details," p. 589, June 4th. It is added that, as a rule, one large window is preferable to two small ones, and where there are two, the second should be made quite a minor one. It is desirable that a window should overlook the approach to the holding. The living-room should be pro-

vided with a cooking range or kitchener, and also with sufficient cupboards and shelves. A good combination of oven and boiler is obtained in what is known as the "Yorkshire Range," particular types of which were referred to by several witnesses.

### *Scullery.*

The scullery is required primarily to relieve the living-room of all dirty and untidy work, and is best planned either to lead directly from the living-room, or to be accessible immediately outside the living-room door. The aspect of the scullery is of less importance than that of the living-room, but probably it is best if it can be arranged to face the east; and an entirely sunless scullery is undesirable. As with the living-room, the convenience of the scullery depends very much on its planning, and the relative positions of doors and windows is of great importance; many sculleries are of comparatively little use in proportion to their size, owing to the space occupied by swinging doors and passage-ways from door to door. Except where a separate outside wash-house is provided, the scullery should contain a copper fitted with some arrangement for diverting the steam into the fire or flue, several of which are now in general use. Space is needed for a mangle and other appliances. Where a sink is provided it should be fixed under, or adjacent to, the window, and should have space on both sides, if possible, or at least ample space on one side, for a fixed table or draining board. A table by the copper is also convenient. Shelves and pegs should be liberally provided.

It is advisable, on the whole, that the scullery should be fitted with a small simple fireplace or cooking stove; this is a great boon to the household in hot weather, when a fire in the living-room would cause discomfort. It is important, however, that the scullery should not be so large, or be planned in such a way, as to encourage its use as a living-room. Subject to this consideration, there can be no doubt about the convenience of a roomy scullery.

The scullery should have an outer door giving ready access to the farm buildings, the dairy (if one is provided), the fuel store, and the earth or pail-closet. It is of great advantage to have a small portion of the yard immediately outside the scullery paved and covered. This can usually be done at very little cost, and it provides a valuable addition to the house; on fine days much of the work can be carried on in the yard, while in wet weather the access under cover to the other offices enables personal discomfort and the bringing of dirt into the house to be avoided.

### *Larder.*

A good larder is required by the small holder, for as a rule he does not live very near to shops and will therefore need greater storage room; moreover, he will generally consume a quantity of home-grown produce. Space is required also for salting a pig and for keeping a barrel of ale or cider. A larder of the size gene-

rally provided in an urban cottage is therefore quite inadequate for a small holding. The Committee, while suggesting 24 sq. ft. as the minimum, advise that wherever possible it would be better to make the larder at least 8 ft. by 5 ft., or 10 ft. by 4 ft.

The larder should face north or north-east and never south or west if such an aspect can be avoided; if the best aspect cannot be secured the windows should be protected by some means from the sun, and should be so placed that, if the rays of the sun cannot be kept out, they shall not fall upon the shelves where food is to be kept.

Access to the larder may be either from the scullery or from the lobby as near as possible to the living-room door, or even from the living-room itself, although it is undesirable to have too many doors in the living-room. The larder should be well lighted and ventilated with openings covered by copper wire gauze to exclude flies. If there are adequate ventilating openings near the floor and ceiling, the window may be a fixed light, or it may be a Yorkshire slide-window, which is a type that will open and yet allow of the opening being completely covered with gauze. The space under the stairs, though not the best place for the larder (particularly if the staircase is not on an outside wall), may be used for this purpose, provided it is ventilated properly and special care is taken to prevent dust and plaster dropping from the soffit of the stairs. A slate or stone shelf in the larder will afford a great inducement to keep articles of food there that otherwise might be put in the dairy, and it is a good plan to set the shelf about one inch and a half away from the wall. The larder should never be used for the storage of milk intended for sale or setting up.

### *Fuel Store.*

This also needs to be roomy in the case of the small holder, so that he may benefit from the convenience and economy of being able to store a fair amount of coal. When three bedrooms are to be planned in a house having only a living-room and scullery on the ground floor, it will be found both desirable and economical as a rule to include the fuel store, and also the dairy, under the main roof, so as to obtain greater space on the first floor. But where only three bedrooms are required in a house having a parlour in addition to the living-room and scullery, the fuel store, and sometimes the dairy, may be more conveniently planned as an adjunct to the main building, accessible from the outside by a covered way, or they may even form part of the farm buildings if these are situated sufficiently near to the house. The occupier will need space, either in his fuel store or in a shed or elsewhere, to keep his garden tools, perambulator, bicycle, and many other things of the kind.

### *Lobby and Staircase.*

The staircase may be planned to lead from the living-room, and if it is suitably placed there is no serious disadvantage in this arrangement beyond the fact that it



necessitates an additional door in the living-room, which it is desirable to avoid if possible. It is more convenient generally that the staircase should start from a lobby outside the living-room door, into which lobby the front door would open. The Committee inspected houses in which there was only one outer door, and in one instance the door opened into a lobby from which there was direct access to all three downstairs rooms and to the dairy—an arrangement which the occupier thought very convenient.

The stairs should not be steeper than 8-in. rise and 9-in. tread, and a proper handrail should be provided. The staircase should always be lighted and ventilated at or near the top by means of a small window that can be readily opened. Where there is a turn in the stairs the landing must not be made too small to allow the passing of ordinary pieces of furniture, or of a coffin; at a complete turn, where it is not possible to lift things clear of the newel post, it will be found that a clear width of at least 2 ft. to 3 ft. 3 in. should be allowed.

#### Bedrooms.

In considering what size the bedrooms should be made, standards of cubic space

can be regarded as only an approximate guide, since the healthfulness of a room must depend less upon its size than upon the proper use of the means of ventilation. When rooms are habitually occupied by more persons than will allow at least 300 cub. ft. per adult, they are generally considered to be so overcrowded as to justify the interference of the local authority in the interests of public health. Such a standard is obviously inadequate to apply to new houses. It is becoming recognised that the desirable standard to keep in view is a minimum of 500 cub. ft. for each adult and 250 cub. ft. for each child, and the Committee consider that these are the limits which it would be well to bear in mind when designing small farmhouses.

On this basis of cubic space, the bedrooms in the house of minimum size would accommodate the following persons:—No. 1, two adults and one young child; No. 2, one adult and one child, or three children; No. 3, one adult or two children.

The somewhat larger bedrooms suggested for the house with a parlour would accommodate:—No. 1, two adults and one child; No. 2, two adults or four children; No. 3, one adult and one child, or three

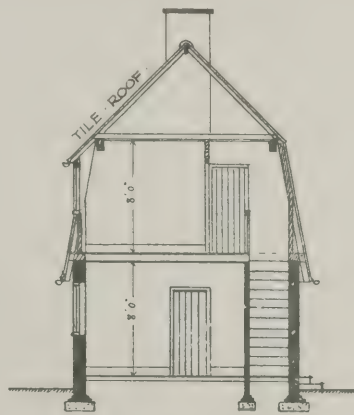
children. In the one case there would be proper sleeping accommodation for a family of, say, three adults and four children, and in the other four adults and four children.

In the largest bedroom, provision is required not only for the double-bed, but very frequently for one, or even two cots as well; the floor area of this room, therefore, should never be less than 150 sq. ft. and 160 or 180 ft. is a more desirable size. The principal bedroom having been planned, some liberty in apportioning the remaining space to the other bedrooms must be allowed, because the exigencies of planning may make it in one case much easier to provide two bedrooms of unequal size, and in another case two of about equal size. Where possible, the second bedroom should preferably be large enough to accommodate two adults, though perhaps it will more often be occupied by two children, or by one adult and one younger person. In the house having a parlour it is often possible to provide, at little extra cost, a quite small fourth room, which will be very useful as a boxroom or serve as a bedroom for an occasional visitor.

Extra bedrooms can be economically



WEST ELEVATION



SECTION ON AB



EAST ELEVATION

CUBIC CONTENTS  
 $39' 14" \times 16' 5" \times 22' = 13,987 \text{ CU. FT.}$   
 $\div 4 = 3497$



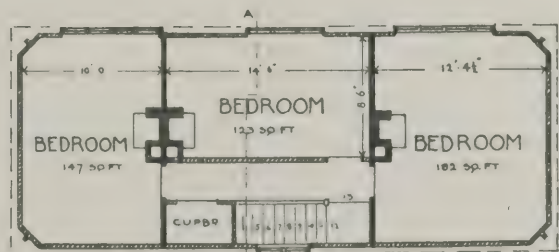
NORTH ELEVATION



SOUTH ELEVATION



GROUND FLOOR PLAN



FIRST FLOOR PLAN

10 0 10 20 Feet  
 DESIGN FOR HOUSE ON SMALL HOLDING.



provided in some cases by utilising the roof space for a second bedroom floor; but it will be found generally that the total cost of providing additional accommodation in this way, when proper allowance has been made for the area occupied on the first floor by the extra staircase and for its cost, would hardly be justified for the sake of only one bedroom on the second floor, except in cases where the ground floor area is too small to provide proper space for three bedrooms on the first floor. When this arrangement is adopted, 14-in. external walls to the first-floor level are sometimes required by local bye-laws.

With regard to the question of the sitting-room or parlour, the suggestion is made that, where economy is specially important, the house might be planned so that a parlour, and therefore probably a bedroom over, could easily be added. Where provision is made for the possible addition of such a bedroom, it would seem reasonable that in the first instance a small third room, sufficient for only one person, should be provided. While the committee consider, therefore, that as a general rule no bedroom should have less than 80 square feet of floor area, they recognise that in cases such as those referred to, the third room may be of somewhat smaller size, suitable for a single person; in no case, however, should a room capable of being used as a sleeping-room contain less than 500 cubic feet. Where a fourth bedroom is required for the use of a farm hand, it is generally considered desirable that access to this bedroom should be provided apart from the main staircase.

The important consideration in plan-

ning a bedroom is to allow sufficient space for the bed or beds out of the draught from the window, so that there may be no special reason to keep the window closed. The remaining space should be convenient for dressing purposes, and for this reason it will be found that an oblong room is often better than a square one, in which there is apt to be only narrow passage way round the bed and nowhere a convenient square space; to avoid this it will be found useful, when considering preliminary plans, to show the main pieces of furniture upon them.

The objection that exists, in the case of the ground-floor rooms, to the door being placed in one of the corners adjacent to the fire, is of much less force in the case of a bedroom; indeed, it will often be found that this is a convenient arrangement. Simple wardrobe cupboards are a great boon, and if they consist only of a wooden shelf in a recess, with a frame for curtains and pegs for hanging, they will serve to protect clothes from dust, and help the occupants to keep the rooms tidy.

The design shown on page 625 is described, somewhat infelicitously, although the meaning is fairly obvious, as "a very roomy house for the cubic contents." It has no north living-rooms, and would be economical in a district where the roofing is comparatively cheap and walling comparatively dear.

## OBITUARY.

*Mr. John Oldrid Scott.*

The death occurred at Bexhill on Friday last, after a short illness, of Mr. John

Oldrid Scott, F.S.A., F.R.I.B.A., in his seventy-second year. The second son of the late Sir Gilbert Scott, R.A., he was educated at Bradfield and entered his father's office in 1860. He was associated with his father in many important works, among which may be mentioned the Foreign Office; St. Mary's Cathedral, Edinburgh; Glasgow University; and restoration work at Salisbury, Hereford, Ripon, Ely, St. Davids, and Bangor Cathedrals. Mr. Scott, like his father, was an enthusiastic Gothickist, and designed and restored many church buildings. He rebuilt Selby Abbey after the fire; designed Lahore Cathedral; Grahamstown Cathedral; St. Paul's, Manchester; St. Mary's, Slough; the Greek Church, Moscow Road, Bayswater; and the Training College and Chapel at Ripon, and Bradfield College Chapel, while among works of restoration may be mentioned Tewkesbury Abbey; St. Michael's, Coventry (the tower and spire); St. Mary's, Shrewsbury; Beverley Minster and St. Mary's, Beverley; and Southwark Cathedral. The great church at Norwich, built for the Duke of Norfolk and only lately finished, was for many years in his hands, and the eastern part is to a great extent his design, though the church was originally designed as a whole and the nave completed by his elder brother, the late Mr. George Gilbert Scott. He married in 1868 Mary Ann, eldest daughter of the late Rev. Thomas Stevens, rector of Bradfield and founder of Bradfield College, and his wife and nine children survive him. Mr. Giles Gilbert Scott, the architect of Liverpool Cathedral, is his nephew. Mr. John Oldrid Scott was buried at Peasmarsh, near Rye, on June 3rd.



THE MAYFAIR HOTEL: DINING-ROOM. RICHARDSON AND GILL, ARCHITECTS.

(See page 613.)



## THE R.I.B.A. DINNER.

The annual dinner of the R.I.B.A. was held on Wednesday, June 4th, in the Whitehall Rooms of the Hotel Metropole, the chair being occupied by the President, Mr. Reginald Blomfield, A.R.A. The company, which numbered about 170, included Lord Saye and Sele, the Lord Mayor, Sir Thomas Barlow (President of the Royal College of Physicians), Sir T. G. Jackson, R.A., the Rev. S. A. Donaldson (Vice-Chancellor of Cambridge University), Sir A. Selby-Bigge (Permanent Secretary of the Board of Education), Sir Thomas Brock, R.A., Sir Aston Webb, R.A., Mr. Frank Dicksee, R.A., Sir Alfred East, A.R.A., Sir Alfred Keogh (Rector of the Imperial College of Science and Technology), Sir W. Goscombe John, R.A., Mr. T. E. Collcutt, Sir Rickman Godlee (President of the Royal Society of Surgeons), Sir Archibald Geikie (President of the Royal Society), Sir William Richmond, R.A., Mr. Lionel Earle (Secretary, H.M. Office of Works), Sir Frank Short, R.A., Sir George Frampton, R.A. Mr. A. S. Cope, R.A., Sir Ernest George, A.R.A., Mr. Basil Champneys, Mr. R. Elliott Cooper (President of the Institution of Civil Engineers), Mr. Edward Woolley (President of the Surveyors' Institution), Mr. Ernest J. Brown (President of the Institute of Builders), Mr. Walter Lawrence (President of the London Master Builders' Association), Mr. Edwin L. Lutyens, A.R.A., Mr. A. W. S. Cross, Mr. Ernest Newton, A.R.A., Mr. J. Alfred Gotch, Mr. James S. Gibson, Mr. E. Guy Dawber, Mr. George Hubbard, Professor Gerald Moira, Mr. W. R. Colton, A.R.A., Mr. Percy B. Tubbs (President of the Society of Architects), Mr. Curtis Green (President of the Architectural Association), Mr. Gerald C. Horsley, Mr. H. W. Wills, Mr. Maurice B. Adams, Mr. William Woodward, and many others.

The customary loyal toasts having been honoured,

Mr. J. S. Gibson, proposing the toast of "The Houses of Parliament," said it was peculiarly fitting for architects to respect that toast, first, because they all honestly appreciated that building on the Embankment in which Parliament carried on its great work, and, second, because there was a strong analogy between the practice of architecture and the practice of Government. Architecture went to the adornment of human life and progress by making life more livable and more attractive, and likewise the work of the politician had for its aim the advancement of the human race.

Lord Saye and Sele replied to the toast in the absence of Viscount Milner.

Mr. Reginald Blomfield, proposing the toast of "The Lord Mayor, the Sheriffs, and the Corporation of the City of London," said they could no more imagine London going on without its Lord Mayor than they could imagine its going on without the Bank of England, and when they considered the respective ages of the two institutions they would find that the Bank was not in it. He had made some little research into the matter and found that it was in the twelfth century that the citizens of London tried to set up a Lord Mayor of their own, but Richard Cœur de Lion, returning from Palestine, stamped on the proposal. In the year 1215, however, which saw the establishment of Magna Charta, the citizens of London got their Lord Mayor. The office was one of the most democratic in the country, as it was arrived at by a progressive series of elections. On all great occasions—of sorrow or of rejoicing—they looked to the Lord



COVER ILLUSTRATION [ON MENU CARD. DRAWN BY PROFESSOR GERALD MOIRA.

Mayor for help, and the hospitality was never denied. They also had with them that evening representatives of the City Companies. These were originally started to develop specific industries, but they had now advanced far beyond that, and applied their funds not only to charities but to worthy educational causes. He coupled with the toast the name of the Lord Mayor, who discharged the duties of his office, as they all knew, with the very greatest ability.

The Lord Mayor (Sir David Burnett), in reply, said the Corporation of London was a very ancient body, with old traditions and quaint ceremonies, which, however, did not in any way detract from the discharge of its duties as a municipal authority. The City of London owed much to the architects, who not only beautified its streets, but materially increased its rating value. Architects, he knew, would appreciate the importance of lung spaces for London. He could remember the time when within a radius of three miles of Charing Cross it was possible to come into comparative country, but now there was no country to be found within a radius of eight miles. It would be a lasting reproach to the present generation, therefore, if they allowed that magnificent park at the Crystal Palace, comprising over 200 acres, to be covered with miserable small dwellings. He understood that a tube railway was shortly to be extended to the Palace and the facilities thus provided would render the spot most admirable and

convenient as a place of recreation. With the aid of friends, the Crystal Palace could be preserved for all future time.

The Rev. S. A. Donaldson (Vice-Chancellor of the University of Cambridge), proposing the toast of "Architecture and the Sister Arts," said that at Cambridge they thought the importance of architecture could not be overrated, and that was why they had elected an architect, Mr. Prior, as the Slade Professor of Fine Arts. The great advantage of Cambridge was that the student could study many styles of architecture on the spot. Only the previous Saturday the Senate had decided that a site should be assigned for the new school of architecture. That was the first step; and from that they went forward with high ideals. The speaker proceeded to give a brief sketch of the proposed schedule of studies, and acknowledged the invaluable assistance rendered in this respect by Professor Beresford Pite. He hoped they would soon be able to establish a Diploma in Architecture.

Sir William Richmond, R.A., in reply, having observed that architecture was undeniably the "Mistress Art," said he supposed that none of the arts prospered more diffidently than that of sculpture. It was unfortunate that they had little space for it at the Royal Academy, but he believed he was right in saying it would shortly be found possible to organise an exhibition, if not yearly, at any rate at frequent intervals, of the sculpture that was being produced in this country. The



art of painting, taken generally, was not nearly so low down in the mire as it was said to be by a certain section of the Press. On the walls of the Academy and elsewhere there was much to be proud of. He thanked Heaven that the Academy was conservative enough not to abandon the old nor to believe that the new was the only work with a soul to be saved. The more the three arts were brought together the greater would be the chance of that much-desired consolidation.

At this juncture the Lord Mayor rose and proposed the health of Mr. Blomfield, observing that they all knew of his distinguished career at Oxford, of his writings on architecture, and that shortly he would be the recipient of His Majesty's Royal Gold Medal. He (the speaker) was fully assured that Mr. Blomfield's occupancy of the presidency of the R.I.B.A. would be of the greatest benefit to the art of which he was so distinguished a practitioner. Mr. Blomfield, in reply, said he was taken hopelessly unawares, and he thanked the Lord Mayor for the kind things he had said. The position which he (the speaker) held was one of the greatest distinctions that an architect could have, and he regarded it in the nature of a trusteeship. He had the advantage of working with an extremely industrious and able council, and it was a great encouragement to know that he had their sympathy with him in all the important enterprises with which they were concerned.

Mr. J. A. Gotch, proposing the toast of "Our Guests," said that any architect, given a piece of ancient stone upon which the hand of man had set some character would be able to tell the date of it to within a few years. Sir Archibald Geikie, however, could see further into a stone wall than any architect. He could resolve it into its component parts.

Sir Archibald Geikie, in the course of a brief reply, strongly advised architects to avoid the use of ordinary limestone and white marble where exposed to the action of the rain in London.

## NEWS ITEMS.

### *The Alhambra, Bradford.*

With respect to the note on this building which appeared on page 603 of our issue of June 4th, it should have been stated that Messrs. Greenall and Cole, of Manchester, are the architects.

### *A Threatened Old Manor House.*

Shipley District Council are considering the question of building new public offices on the Manor House estate. The scheme would apparently involve the demolition of the Manor House, a seventeenth-century building of considerable interest.

### *An Adam Mansion Sold.*

Binfield Park, Bracknell, one of the finest Adam mansions in the Home Counties, which has just been sold, contains very interesting decorative features—among them handsome doors and ceilings, for which, it is stated, £4,000 was recently offered.

### *Blackburn Theatre Royal.*

The whole of the rebuilding and renovation after fire of this theatre is being carried out under the superintendence of Mr. Edward Bagshaw, of Manchester. The contract for rebuilding and decorating has been let to J. Woof-Cronshaw and Sons, of Blackburn.

### *George Trollope and Sons and Colls and Sons.*

For the past year, as for each of the three preceding years, a dividend of 6 per cent. is to be paid on the ordinary shares of George Trollope and Sons and Colls and Sons, builders and decorators. The reserve is again to be raised by £10,000 to £40,000, while £14,515, as against £17,623, is to be carried forward.

### *A Doecker School at Willesden.*

A new school at Willesden, which has been imported piecemeal from Germany, has on this account aroused considerable indignation locally. The new school is built of asbestos boards and wood, and all the outer walls are doubled, leaving an air-space between the two pieces. Through this a current of air, scientifically regulated, can be passed. In winter the school will accordingly be warm and in summer cool.

### *Whiteley Homes, Weybridge.*

The Whiteley Trust have invited the following architects to collaborate with their consulting architect, Mr. Walter Cave, F.R.I.B.A., in designing the buildings for the Whiteley Homes, which are to be erected on a finely wooded site near the St. George's Hills, Weybridge: Sir Aston Webb, R.A., C.B.; Sir Ernest George, A.R.A.; Mr. Reginald Blomfield, A.R.A., P.R.I.B.A.; Mr. Ernest Newton, A.R.A.; and Mr. Mervyn E. Macartney, F.S.A., F.R.I.B.A. It is thought by the trustees that collaboration rather than competition is likely to produce the more harmonious scheme.

### *Westminster Abbey Memorial Windows.*

After the death of Robert Stephenson, the engineer, a stained-glass window was erected to his memory on the north side of the nave of Westminster Abbey. The glass has now been removed from this window and is about to be placed in another window of the same size on the south side of the nave. The reason for this change is that, in its original position, the Stephenson window looked down upon the grave of Kelvin, and it was thought that the position would be more suitable to the window to be erected in his memory. The new position assigned to the Stephenson window is nearer to Stephenson's grave. The alteration forms part of a scheme for the windows of the north aisle of the nave of the Abbey which was drawn up in 1907. There are nine windows which it is proposed to fill with glass in which white predominates.

### *Workmen's Compensation Point.*

It was decided in the Court of Appeal last week (affirming a decision by Mr. Justice Phillimore) that an employer who has had to compensate an injured workman is not deprived of his right to indemnity from a third party merely because he has not given the notice prescribed by Rules 19 and 24 of the Workmen's Compensation Act. Mr. Justice Phillimore's recent decision to this effect was affirmed by the Court of Appeal.

### *Municipal Mortuary.*

Holborn Borough Council, in making improvements at the public mortuary in Kemble Street, Drury Lane, have included a new kind of mortuary. In congested districts the presence of a dead body in an over-crowded house is a serious menace to health and seemliness. Accordingly, the council have provided a special mortuary chamber, or "chapel of rest," independent of the ordinary casualty mortuary, to which the dead may be conveyed pending interment.

## COMPETITIONS.

### *Y.M.C.A. New Building, Chard.*

Chard Y.M.C.A., who recently invited architects to submit designs in open competition for their new building, have awarded Mr. Edward C. H. Maidman, Licentiate R.I.B.A., of Sherborne, the first prize, and an exhibition of designs has been held at Chard. The building will contain a large lecture hall, reading-room, games-room, parlour, smoking-room, caretaker's apartments, cloakrooms, etc.

### *Design for a Card Illustrating Reinforced Concrete Construction.*

Messrs. D. G. Somerville and Co., Ltd., 120, Victoria Street, London, S.W., are instituting a competition, as announced in the list given below, and they explain that their reason for resolving upon this competition is that they have felt for a long time past that full justice has not been done to reinforced concrete from an architectural point of view, and that it will be in the interests of reinforced-concrete designers and contractors if a better or more original treatment is adopted. Of the possibility of such treatment they feel assured, and they hope that the competition may help to bring forward some latent talent. Knowing that architects and other professional men are deluged with a never-ending stream of all sorts of ugly and uninteresting catalogues and calendars, the firm hope to obtain, through this competition, a card which will be of sufficient artistic merit and practical value to justify an architect's hanging it on his office wall.

## COMPETITIONS OPEN.

JUNE 14.—MUNICIPAL BUILDINGS, DEVONPORT.—The Corporation invite designs for municipal buildings and a guild-hall. Premiums £350, £150, and £100. Assessor, Mr. Ernest Newton, A.R.A., F.R.I.B.A. Conditions (£2 2s., returnable) from R. J. Fittall, Town Clerk, Municipal Offices, Devonport, to whom designs are to be sent. Summary and plan of site in our issue for March 12th.

JUNE 19.—LAYING OUT ESTATE, NEWCASTLE.—Corporation invite designs for laying out a portion of their Walker Estate. Premiums £50, £30, £20. Particulars (one guinea, returnable), A. W. Oliver, Town Clerk, Newcastle-on-Tyne. Summary in our issue for April 16th.

JULY 1.—ROYAL PALACE AND LAW COURTS, SOFIA.—Particulars, Commercial Intelligence Branch; Board of Trade, Basinghall Street, E.C.

JULY 20.—CARD ILLUSTRATING CONSTRUCTIONAL STEELWORK AND REINFORCED CONCRETE.—Messrs. D. G. Somerville and Co., 120, Victoria Street, Westminster, invite architects and designers to submit a card illustrating their constructional steelwork and reinforced concrete according to conditions drawn up by Mr. Herbert W. Willis, F.R.I.B.A., who will act as assessor. Particulars (1s.) from above address.

JULY 24.—SANATORIUM, FAZAKERLEY.—Corporation of Liverpool invite designs for a sanatorium to be erected at Fazakerley, and to contain 250 beds. Premiums 150, 100, and 50 guineas. Particulars (two guineas, returnable), Edward R. Pickmere, Town Clerk, Municipal Offices, Liverpool. [NOTE: The date has been extended from that previously announced.]

SEPTEMBER 1.—TOWN PLANNING, HIGH WYCOMBE.—Schemes for the town planning of the borough are invited by the Borough Council. Premiums £25, £10, and £5. Particulars, T. J. Rushbrooke, Borough Surveyor, High Wycombe.



## MOTOR NOTES FOR BUILDERS AND ARCHITECTS.

## THE COMMERCIAL VEHICLE AS AN AID TO BUSINESS.

*Motor traction has become a subject of much importance to the builder and contractor, with whom, as in all other directions, horse haulage is rapidly declining. The newer system, however, presents many perplexing problems with regard to the selection and maintenance of vehicles suitable for conditions that are extremely variable. The architect, who often must travel over long distances, has also an interest in the subject in addition to that connected with the design of garages; and public authorities are increasingly concerned both in the use of motor traffic for municipal service and in the formation and maintenance of suitable roads to accommodate it. To meet all these interests, we have engaged an expert to contribute a weekly article on the subject. He will be glad to hear from readers who are in need of skilled advice on the matters dealt with.*

THAT the use of the commercial vehicle as a method of transport for the conveyance of all kinds of materials is a paying proposition I am sure those of my readers who already have had experience in this direction will agree. In almost every trade necessitating the use of transport signs are not wanting to show that the old-fashioned method of horse transport is doomed, and that the motor lorry, the delivery van, and the numerous other kinds of commercial vehicles are rapidly increasing on the streets of our towns and the roads of our country.

Such a state of affairs permits of only one logical conclusion—that motor traction is a success. Business men nowadays do not waste their money on a non-paying proposition. Large contractors do not add to their fleets of motor vehicles from time to time unless it pays them to do so. In these days of close-cut prices and contracts made under penalty, it is of the greatest importance to *know* that material will be ready to time. The motor vehicle enables the contractor to be dead sure of this. It must be remembered that the days are past and gone when the petrol engine only worked sometimes, when it was about a ten to one chance against any motor vehicle at all completing its journey without some kind of trouble. The present-day motor vehicle is as reliable as the railway engine. The object aimed at in a series of articles of which this is the first is to show, first, to those not already converted to motor traction, that the idea is perfectly sound, that the motor vehicle is a quicker, cheaper, and infinitely more reliable means of transport than any other method at present in use; secondly, to aid those who are users of commercial vehicles by giving the results of my own experience as well as that of others, in showing how the greatest amount of work may be done at the least possible cost, hints on how to get maximum efficiency, reduction of running costs, advice as to the most suitable type and horse-power for any given job, and many other things which go to make up the successful and economical maintenance of anything from one small delivery van to the upkeep of a huge garage with thirty or forty vehicles of various types. I am fully prepared at all times to answer any query in connection with motor vehicles.

*Buying Your Motor Truck.*

The biggest problem the business man has to solve in selecting his first commercial vehicle is to be sure he is getting a vehicle of carrying capacity suited to his requirements. If the buyer leaves this to the salesman he will not infrequently discover that he has purchased a vehicle not suited to his conditions as well as other capacities would. The last commercial vehicle show demonstrated this: A provincial man engaged in the building construction trade made the usual circuit of

the exhibits and was flooded with instructions to buy nothing but five and six-ton machines, being assured that they were the only vehicles that would suit his business. One conscientious salesman, in analysing the problem for the buyer, inquired about the road conditions over which the truck had to operate, and on learning those at once admitted: "What you want is a two or three-ton machine and not a five or six-ton type." This comment was not provoked by the suitability of the line the salesman had to dispose of, but was based on actual experience of the salesman in other cases. According to his experience, the five or six-ton machines were the only suitable ones where good roads were used, but when clay or dirt roads are to be used, as the conditions in question called for, the lighter capacity vehicle was the more suitable. Another example of the suitability of the vehicle to the job comes from a mining district, where several five, six, and seven-ton trucks are used for the conveyance of ore from a certain mine to the railroad. Trucks of this capacity operate with the utmost satisfaction over the majority of routes, but there are others where the road conditions are too soft and where heavy trucks actually cut up the road so badly that they can operate but little over half-time and then at a great disadvantage to themselves. It is a peculiar fact that in few cases where specially heavy capacity trucks are working at such disadvantages the firm who are making them market lighter capacity machines and the salesman apparently had not any further object in selling the big truck other than that of putting in the vehicle that he considered the best one for the job. It was scarcely to be expected, perhaps, that he should be master of such a situation, and it might be urged that the buyer should have known; but the fact remains that the vehicle is not best suited for the job.

The solution lies in greater care on the part of the buyer and also greater discretion on the part of the selling organisation. Each selling organisation should familiarise itself with the conditions under which a commercial vehicle must operate, because they are most important for the good of the industry. It is better policy in the long run for the salesman to be content with a smaller commission on a vehicle well suited to its work than a larger commission on a truck not suitably adjusted to its field of operation. But the big capacity vehicles are not the only offenders—in fact, it often happens that the salesmen of small capacity machines are equally guilty. With small capacity vehicles there is a general tendency to boast about the overload capacities of the vehicle, commenting on the large size of the motor, that factor of safety in the frame axles, springs, etc. This is all good logic up to a certain point, but the buyer should always remember that the strength

of a chain lies in its weakest link, and that while many parts of the vehicle may be capable of withstanding its excessive overloads, it very rarely happens that all are, and derangement of one vital part, be it ever so small, is capable of laying the vehicle off duty.

It is an absurd selling policy for a salesman to push a vehicle not suited to the work. The immediate commission may be an appetising bait, but in the end he is a loser. The man who looks ahead cannot afford to sell excepting where he feels the vehicle is the best one for the job.

Due consideration must be given to measurements. Is the loading platform long enough and wide enough? Is it too far from the ground? Is the top too low? What is the length of the wheelbase? What is the circumference of the circle in which the machine can turn? What is the distance of the loading platform from the ground when loaded to full capacity? How much room is there for the driver and his assistants?—one or more?

Such details are just as important as, if not more so than, the mechanical details relative to the number of cylinders, bore and stroke of the engine, axle construction, etc. And another point to be remembered is to find out the speeds at which the vehicles can be run and the dimensions of the wheels.

A man can always find out his mistakes afterwards. He is bound to find some, because his mind is progressive just as much as mechanical and body construction are progressive. But first take as many precautions as are in your power to avoid such mistakes and benefit by the mistakes of others. They all have made them and they are easy to learn. Just take a look at the truck that has been introduced into the business when motor traction was a novelty and the truck that is being introduced into the business now. There is a very great difference indeed—a difference which proves that many mistakes have been made and rectified since the early days of the commercial vehicle proposition.

*Archbishop Abbot's Hospital, Guildford.*

By the combined action of the Road Board, the Surrey County Council, and the Corporation of Guildford, a block of buildings has been removed in order to widen the eastern approach to the Guildford High Street for the exigencies of modern traffic. Incidentally and unexpectedly there has been revealed the eastern flank of one of the finest Jacobean buildings in the country, Archbishop Abbot's Hospital, with its towers and the east window of its chapel. The sale of the surplus land for building, by which it was very properly intended to reduce the cost of the whole road-widening scheme, would result in again hiding what has been obscured at some point in the town's history by a grievous error.



## TRADE AND CRAFT.

*Roofing Tiles.*

We have received from Messrs. Warner and Co., Star Brick and Tile Works, Knowl Hill, Twyford, Berks, some specimen "Antique" tiles of their manufacture. These tiles, 10 in. by 6½ in. by ½ in., are of excellent quality, and are of a colour and a texture that would give them a very pleasing appearance *in situ*. On percussion they have a fine metallic ring, and are evidently very weatherproof and durable. Fortunate in the possession of one of the richest beds of plastic clay in the kingdom, the firm manufacture both hand-made and machine-made roofing tiles—red smooth-faced, purple sandfaced, red sandfaced, and black sandfaced. The clay is weathered and prepared for twelve months before being used, and, containing in itself the requisite amount of oxide of iron, burns a rich red without the aid of any artificial colouring. Fittings, such as half-bonnet-shaped hips, valleys, ridges, etc., are made to match. Tiles made at these works have stood the test of fifty years' wear, and the present annual output amounts to six million tiles.

*Sanitary Appliances.*

Messrs. Davis, Bennett and Co., sanitary and heating engineers, Westminster Sanitary Works, Horseferry Road, Westminster, have prepared an abridged catalogue of sanitary appliances, in which are illustrated and described baths of many patterns; various forms (all elegant) of lavatories, single and double; towel-rails; flushing cisterns; urinals, singly and in ranges; and various sinks. All the appliances and fittings shown are of excellent design and finish; and this abridged catalogue will be found very convenient for architects who for the moment are more concerned with general requirements than with the specialities for hospitals, etc., for which this firm is in high repute. These, as well as the appliances which meet more ordinary requirements, may be seen in action at the extensive showrooms in Westminster, where architects are always cordially welcomed; one or other of the partners in the firm being ever ready to explain the details.



NEW SHOP-FRONT, PICCADILLY, LONDON.

## A PICCADILLY SHOP-FRONT.

The recent shop-front controversy has not been altogether without beneficial results; indeed, instances of a great improvement in design and treatment are frequently being brought to our attention. We illustrate on this page exterior and interior views of a shop recently carried out in Piccadilly. This is an admirable example of shop-front design, successfully combining a good architectural treatment with an abundance of window space. The work is executed in bronze and statuary marble. Designers often ignore the ob-

vious fact that a shop-front is a thing to be looked at very closely; and, as a result, our streets have been filled with much coarse detail—detail that would be unobjectionable only when seen from a considerable distance. This criticism, however, cannot be advanced against the accompanying example. The detail is all in excellent taste, and carried out in a manner that admits of, and even invites, the closest scrutiny. All the work, including the interior fittings, was designed and carried out by Messrs. E. Pollard and Co., under the direction of Mr. M. E. Collins, F.R.I.B.A.



NEW SHOP FOR CARRERAS, LTD., PICCADILLY, LONDON.



# THE ARCHITECTS' & BUILDERS' JOURNAL.

Wednesday, June 18, 1913.

Volume XXXVII. No. 962.

No. 38.



*(From Piranesi.)*



SOUTH AFRICAN WAR MEMORIAL, CLONMEL, IRELAND.  
R. CAULFEILD ORPEN, R.H.A., AND P. L. DICKINSON, ARCHITECTS.

(See page 638.)



# THE ARCHITECTS' & BUILDERS' JOURNAL.

JUNE 18, 1913.

CAXTON HOUSE, WESTMINSTER.

VOLUME 37. No. 962.

## Sash or Casement?

THE battle of the styles—there are really only two styles in architecture, the formal and the picturesque—is usually carried on by the generals of either side, supported by their entire army corps; but occasionally detached parties or even individual soldiers engage in skirmishes on their own account, and of these none is more frequent than that between the sash and casement window. The last rencontre took place in the May number of that admirable American monthly the "Architectural Record," in an article entitled "Returning to the Casement Window." The writer here attempts to play his native architecture a very sad trick by aiming at destroying its one tradition, the domestic architecture. However much one is inclined to twit America with lifting its designs for buildings from Europe—a proceeding which can be abundantly justified—it has always been necessary to make a reservation as to her Colonial Style, which is as much her own as French Louis XVI. or English Georgian. To try to make her break with this tradition and start reproducing English manor houses of the seventeenth century appears to us the height of injudiciousness; nor can we agree, in spite of the compliment, with the writer that "the English type of domestic architecture is the happiest type for the country house, for the very simple reason that it conveys a greater impression of domesticity than any other. Even our own early farmhouse type, homely as it is, does not equal the English house (even in its own class), because the picturesque formed no part of its make-up and because its severity was a little uncompromising." The inference is that English domestic stands first *because* it is most picturesque; and, further, that the impression of domesticity depends upon picturesqueness. Both these premises we dispute: English domestic may, indeed, be the best, but it is by no means always picturesque, without being any the less domesticated on that score. We should like to show the writer some typical English villages and county towns; except in certain districts, the Cotswold, for instance, more than two-thirds of the old houses belong to the eighteenth century. Though the guide-books and local photographers advertise the timbered gables, the quiet and retiring red-brick and sash window fronts give the prevailing character of English homeliness. The reason for the prevalence of this period of housebuilding in this country is sufficiently clear—in the seventeenth century England, except in the stone districts, was built of timber; by the next century the majority of these timber frames were decayed or burnt down, and were gradually replaced by brick with camber arches and sash windows. In Tewkesbury, for example, whose chief days of prosperity were during the "timber period," out of 250 old fronts, fifty-three are timbered and casements and 197 brick and sashes. We feel confident that after a little closer study of our villages and towns, to say nothing of our farm and manor houses, the writer of this article would retract the statement that "few architectural features are as difficult to reconcile with

English domestic architecture as the American double-hung window. . . ."

A refutation of the charge that American Colonial fails in domestic sentiment by reason of its severity being "a little uncompromising" is to be found in this same number of the magazine, the editor of which has ironically preceded this article by a description of the old Massachusetts town of New Bedford. The delightful houses here illustrated have a refined homeliness about them which compare very favourably with that of the English examples shown in support of the casement. It would be a foolish anachronism to exchange the light and cheerful New England houses, with their shattered sashes, wooden balconies, and delicate loggias, for the heavy stone mullions, steep gables, and parapets of the earlier work of the old country. The New Bedford houses are as typical of all that is cultured in the States as are the writings of Hawthorne, and it is a fact that the "House of the Seven Gables," however picturesque after passing through his brain, was in the original a typical Colonial house with sash windows, proving that this style was sufficient to satisfy the domestic sentiments and stimulate the romantic yearnings of the greatest American writer.

But, to turn to the more practical issue, apparently the American client still persists in demanding the sash window, showing therein a sound instinctive traditional taste which the architect can and should respect. Within, the demand for the casement is equally persistent; but, unfortunately, owing to the great expense of its true form of stone mullion and metal frame, it has to be supplied in some cheap and paltry substitute, such as the painted wood of the garden suburb cottage. For years, indeed, we have been groaning under the tyranny of the domestic casement, and there is much less to be said in favour of the American adventuring upon it than of our returning to the sash. No doubt the casement suits the loose handling of the easy-going architect; he can use it at random, or in any variety of size to suit the requirements of rooms that happen to find themselves awkwardly on the main face of the building. Provided the unit of one light is correct—and in this the casement is absolutely strict—it can be multiplied into any variety of groups, both horizontally and vertically, on the same front; but in old work, in order to maintain the continuity of wall and window surface, which would otherwise be irregularly broken up, the mullions and transoms were in similar material to the walling. The sash, however, definitely cuts the wall into a series of well-marked solids and voids which cannot be trifled with—it is, indeed, a dangerous instrument, for when an architect has proportioned his sash window correctly he is only at the beginning of his troubles; the shape of the wall space between it and its neighbours on either side, and its vertical relation to its fellows above and below, are of equal importance. Nor can it be considered a successful use of it to plan a house in which the scullery is lit by a gigantic window crossed by a sink, to balance that of a drawing-room; reput-



able architects have been known to fall into this error, which has the additional misfortune of bringing the sash into disrepute.

Another and more frequent cause of the disrepute of the sash is the use by the jerry-builder of the ready-made Swedish importations of villainous proportion and wanting dividing bars. In contrast to this the casement, however tritely used, has gained a reputation with the general public for being artistic, though it is manifestly unfair to judge the sash by this prevalent corruption of it. In reality it is far more nearly suited to modern requirements than the casement, and its type of architecture is far more expressive of the community of planning of our best modern suburbs than the self-assertive and picturesque irregularity which is associated with the casement.

P. A.

#### The New Delhi and the Indian Craftsman.

THERE seems to be but little danger of the new Delhi being rushed up with unseemly haste. It is true that the Government of India have almost decided upon the site; but, as if to atone for this precipitancy, they have made an arrangement which promises to act as a very efficient check on rash speed. They are, we are told, "steadily adhering to the policy of encouraging indigenous talent." Before encouraging it, however, they have to find it. "First catch your hare." Studios are to be formed, where will be welcomed "any Indian craftsman who may show himself by practical work to be able to assist in furnishing decorative details for important buildings. Opportunity will be afforded in this way for indigenous artistic talent to find expression, and to be trained to further development in adaptation to modern Indian requirements." Certainly one is at a loss as to exactly how long it will take to develop an indigenous artistic talent, but there exists a vague general impression that the process might be somewhat languorous; in which case the new city is not likely to be built—or, at all events, decorated—with indecent haste. Of course, the idea is not at all new. Sir W. B. Richmond, in training his mosaic workers for St. Paul's, was following Italian precedent. But in these cases the workers were taught by some master of the crafts. Presumably this is to be so in Delhi, with the difference that there, probably, the masters will be under a greater obligation to learn as well as to teach, in the ductile spirit of Chaucer's curate. With all this reciprocity, if the teachers are to be Europeans, the adaptation of indigenous artistic talent to modern Indian requirements should result in a new blend of East and West which may chance to be no less curious than beautiful. From the considerably more than a million native builders it should certainly be possible to draw a fair percentage of artistic craftsmen, from whom their teachers will have much to learn: and the fate of Indian craftsmanship will turn on the European capacity for assimilating and applying the knowledge. The position is as interesting as it is critical.

#### Geyser Flues.

WE publish on another page of this issue a letter from the secretary of the British Commercial Gas Association drawing attention to the necessity of adequate flues being fitted to geysers in bathrooms and other confined spaces: and we would here add our own emphasis. Geysers are perfectly safe and admirably convenient appliances when properly fitted. It is, however, a cardinal requirement that the fumes of combustion shall be taken away outside by means of a pipe. Even when a room has a window which can be widely opened, this is most desirable, but it becomes absolutely essential in a room which has no such means of ventilation. In every case of suffocation caused by a geyser that we have ever heard of, the

room has been a small shut-up one with no window and no flue for the exit of gas fumes. It is a great injustice to makers of geysers to attach any stigma to their apparatus in such cases, because the fault is entirely due to the neglect of elementary requirements. We should like to see, however, greater supervision exercised in this matter, and should regard it as a public boon if a regulation were introduced making it a technical offence to fit a geyser in any room without having a flue to the outside air.

#### Proposed Architects' Defence Fund.

EVERY instance in which an architect has been the central figure in expensive litigation—and in recent years such instances have been numerous—has tended to confirm the feeling that where the architect has the moral support of the entire profession he ought also to have the material support, especially when, as frequently happens, he is fighting single-handed not only his own battle, but one in which, in a manner, his professional brethren stand or fall with him. At length the full enormity of looking on, not unsympathetically, perhaps, but quite helplessly, while some ill-starred architect was being well-nigh ruined for asserting a right or maintaining a principle has dawned upon the R.I.B.A., and the ineptitude is in a fair way to be remedied. A resolution proposed by Mr. Edmund Wimperis at last week's business meeting of the Institute should result in an effective remedy. It was "That the Board of Professional Defence be instructed forthwith to prepare a detailed scheme for the creation of a fund for mutual aid and advice (legal) for members of the Institute as necessity may arise." The resolution was carried unanimously and the resultant scheme should not only bring welcome relief from a wearing anxiety to the individual member, but, *a fortiori*, should make the Institute considerably more attractive to those to whom less tangible inducements make a far less effectual appeal.

#### New Parliament Buildings for Canada.

CANADA, in seeking designs for her new Parliamentary buildings, for which a magnificent site at Ottawa has been chosen, seems to be setting about the work in the right spirit. At all events, the Canberra muddle has been avoided at the outset. Properly qualified assessors are being appointed, and the competition is limited to architects of the British Empire. It will be remembered that in the case of Canberra the competition was banned by organised architects, and that consequently it was limited to outsiders, with the natural result that foreigners took the chief premiums. From the Canadian competition both these contingencies have been eliminated. Very wisely, the co-operation of the R.I.B.A. has been sought, and Mr. T. E. Collcutt has been appointed one of the three assessors, the other two being Canadian architects. There are sure to be those who will say that in deliberately denying herself the services of American and French architects, Canada has shown less wisdom than loyalty, but this proposition ignores the strength of Canadian feeling. In some senses Canada is the more intensely British for the proximity of the United States, and one feels instinctively that she is morally, if not artistically, justified in choosing that her Parliament buildings shall in no way offend the national sentiment, to which they ought to be in all respects an expressive monument. And, after all, the Empire is extensive and multifarious enough to satisfy the chief demands of cosmopolitanism in art. If, ultimately, the honours should happen to fall to architects practising in these islands, Canada certainly would not grudge them, and, actuated by the same cordial spirit of kinship, we should, it is equally certain, rejoice exceedingly to find ourselves handsomely beaten by some brilliant exhibition of native Canadian talent.



## LA BAGATELLE, PARIS.

THE Château of Bagatelle stands half hidden in the Bois de Boulogne, near the Seine. The site was formerly occupied by another house, but when and by whom this was built is uncertain. The present building was the outcome of a bet made, in 1777, with the Queen Marie Antoinette by Comte d'Artois, Louis XVI.'s younger brother, who undertook to rebuild the little château and create an Anglo-Chinese garden in time for her reception on her return from Choisy, two months later. The Comte d'Artois engaged as his architect Belanger, a Frenchman; but to aid him in the new and mysterious art of Anglo-Chinese garden design he imported an Englishman of the name of Blaikie. The immediate surroundings of the château (that is to say, the original concession of five or six hectares) were laid out by Belanger in the old formal style, with forecourt, trellises, and boskages cut into regular shapes. Ten additional hectares, however, were taken in from the Bois de Boulogne and handed over to the imported garden architect, who laid them out with wriggling paths, hermitage, grotto, Chinese pagoda, and other curiosities.

The "Folie d'Artois," as Bagatelle came to be called, was speedily built. In forty-eight hours Belanger had completed his design and put it in the builder's hands. How long Blaikie took to get out his design, or whether

he flung himself unpremeditated upon the virgin bois, we do not know. One great difficulty was the sudden provision of the requisite building materials, but under the *ancien régime* this was speedily overcome; the Comte merely gave orders to the Swiss Guards to patrol the streets and watch the city gates, to seize any wagons laden with suitable materials, and direct them to La Bagatelle. The value of the material was paid on the spot, but without much discrimination as to whom it really belonged.

D'Artois won his bet of 100,000 francs, but Bagatelle had cost him one million two hundred thousand — equivalent at the present time to three million francs (£120,000). All he had to show was a small house or casino containing, on the ground floor, one fine circular saloon, two oval ones, and two small square cabinets, and two small bedrooms on the first floor lighted by square attic-windows. At the opposite end of the *Cour d'honneur* there was also a *Bâtiment des Pages*, since demolished.

In 1835 the Marquis of Hertford bought the domain in public auction for the sum of £12,524. Acquired probably to satisfy a passing whim, the little place soon began to fascinate the Marquis, who set about restoring it, for it had fallen into woeful decay, owing to its hasty construction and its close proximity to the



LA BAGATELLE, PARIS: GARDEN FRONT.



Seine. The Marquis died in 1870 and left La Bagatelle and all his unentailed property to his natural son, Sir Richard Wallace, who died twenty years later. Considerable alterations and restorations were made to the building by father and son, and, although they were carried out in perfect taste, they can hardly be otherwise than regretted, except in so far as they prevented total decay. The Marquis raised the whole of the upper storey, including the dome, and added a blind attic, and, if we may judge from earlier engravings, all the fronts were refaced with a change of detail. The style of the interior, however, was scrupulously preserved. In 1904 the whole domain of twenty-four hectares was bought by the Council of the City of Paris for £260,000. A view of the garden front of La Bagatelle is given on the preceding page, and one of the entrance front on page 643.

### SIR LAWRENCE ALMA-TADEMA'S STUDIO.

VAGROM men like Morland, or penurious painters like Turner, cared nothing for artistic environment; but at the other extreme are the Leightons and Alma-Tademas, who have shown an almost sensuous passion for surrounding themselves with beautiful objects splendidly housed. Sir L. Alma-Tadema's studio at 34, Grove End Road, N.W.,

one of the most imposing of its princely order, was, on the whole, a faithful expression of the painter's personality, although it emphasised his Oriental side rather than his classicality. The "lots" listed for the sale of the "effects" announced to be held by Messrs. Hampton and Sons on Monday, June 9th, and four following days, and on Monday, June 16th, comprised many objects of Eastern origin. Among the "appointments" of the studio were a small Chinese blackwood carved table with inlet marble top; two Burmese wood settees; a copy, in ebony and ivory, of an ancient Egyptian stool in the British Museum; a profusely carved Indian rosewood stool with circular stuffed top in brocade; a low Moorish table, inlaid with mother-of-pearl and various coloured woods; two Chinese native wood armchairs, profusely carved and inlaid with mother-of-pearl, the backs, seats, and sides inset with veined marble; a Moorish cabinet of mother-of-pearl, inlaid with tortoiseshell panels designed in arabesque (shown to the right of the arch in the accompanying illustration, which is reproduced, by permission, from the sumptuous and well-illustrated catalogue prepared by Messrs. Hampton and Sons); and several other pieces of Chinese, Japanese, Moorish, and Persian furniture. The semicircular settee which, shaped to fit the apse, is the central feature of the illustration, is made of coromandel, ivory, ebony, and other precious woods; the ends being of cedar, decorated with scroll designs, inlaid



A VIEW IN THE STUDIO OF THE LATE SIR LAWRENCE ALMA-TADEMA.



with finely carved ivory and mother-of-pearl, the terminals forming swans' heads with carbuncle eyes. It is upholstered in yellow morocco, with alternate panels of embroidery, and is a replica of a design prepared by Sir Lawrence for the late Mr. Marquand's Greek music-room in New York. The catholicity of the artist's taste, indeed, is evident throughout the catalogue, which, roughly speaking, may be said to embrace all countries and every period. Considering to how large an extent he occupied himself in painting Classical subjects, it is surprising to find that apparently not Greece and Rome, but China and Japan, were the chief sources of his collections; but it is an open question whether it was predilection or merely opportunity that gave him this bias. The gist of the matter is, however, that he recognised beauty whenever he saw it, and did not greatly concern himself about what it was or whence it came.

## CORRESPONDENCE.

*The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents.*

*Correspondents are asked to be brief, and to write on one side only of the paper.*

*L.G.B. Standard Plans for Working-Class Dwellings.*  
To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—The series of plans issued by the L.G.B. for, I assume, the guidance of architects and others, are not in my estimation of such a model character as to be held up as an example to be followed by either local authorities or private persons.

In only one of the five types will there be found to be sufficient head-room either going up or coming down stairs, and in this one case it has to be obtained by forming a bulkhead in the room above.

*Type A.*—With rooms 8 ft. high, the headway shown would be 4 ft. To provide sufficient height, the area of the back bedroom would be reduced about 9 ft. super., and there would not be sufficient room left to stand a small bed as shown. The food store is very small and the door to the same is only 3 ft. away from the copper.

*Type B.*—The large bedroom in this plan would have to be reduced in a similar manner to get proper head-room on the stairs. Neither staircase nor landing can be properly lighted or ventilated, and one of the bedrooms is only 6 ft. 6 in. wide.

*Type C.*—To obtain proper headway, a bulkhead even larger than that shown would have to be taken out of the small bedroom, thereby reducing the floor area to a little over 50 ft. super. (instead of 63 ft. as figured). This is much too small for a bedroom with no fireplace. The cubic contents of a room of this area would be so small that it would almost amount to a case of overcrowding for one person to occupy it!

*Type D.*—The area of the front room would have to be reduced to give headway to the stairs, and sufficient room would not then be left for standing the small bed as shown. If the houses were built in blocks of four or more, the landings of end houses only could be efficiently lighted or ventilated. The food store is very small. The third bedroom is much too small for a room with no fireplace.

*Type E.*—Insufficient headway shown. If the houses were built in blocks of four or more, neither landings nor ladders could be lighted or ventilated, except in end houses.

SURPRISED.

*Buildings for Small Holdings.*

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—The Blue Book on Buildings for Small Holdings, reviewed in your last issue, though containing nothing new (and perhaps for that very

reason), is an interesting and useful publication; but are the drains sufficiently isolated from influences not conducive to pure dairy produce? A fold-yard within fifteen feet of a dairy and of the house back door is surely wrong. If the fold-yard were emptied in dry weather during a northerly breeze much very objectionable matter would inevitably find its way into dairy and house; and all the year round, whenever the wind shifted into that quarter, there would be objectionable smells. The intervening E.C. does not improve matters. I am quite certain, from experience, that a liberal "fairway" should separate the house from the steading. I know that the fault has been committed so often that it is still done without thinking, but "age does not justify a nuisance," and we are now considering model plans.

Alnwick.

GEORGE REAVELL, JUN.

*The Rhodes Memorial in the Royal Academy.*  
To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—In your issue of May 7th, in reviewing the architectural exhibits at the Royal Academy, Mr. Ramsey inquires as to the use of the Rhodes Memorial. Might I enlighten him, and perchance some of your readers, through the medium of your valuable paper?

In the centre of the structure, at the top of the steps, in a niche, is a bust of the "Empire Builder" (by the late J. M. Swan, R.A.), in an attitude of thought, its purpose being to remind the visitor of the fact that the great man was always thinking out plans for the advancement of the colony and the Empire.

May I also proffer a note of surprise that the name of the late Mr. Francis Masey, F.R.I.B.A. (Mr. Baker's former partner) is not mentioned in connection with this great work?

Southsea.

G. NORBURN.

*Gas Water Heaters.*  
To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—I am desired by the executive committee of this association to warn all connected with the supply or fitting of gas water heaters that appliances consuming large quantities of gas in a short time ought never to be fitted in such confined spaces as bathrooms without an adequate flue for carrying off the products of combustion.

Fatal accidents which have been caused through neglect to fit this necessary adjunct to geysers emphasise the necessity for as much care being taken to see that gas consumers are protected against risk in the use of what is, if properly fixed, a perfectly safe as well as most convenient type of apparatus as has, for example, to be taken to protect consumers of electricity by seeing that the wiring is properly insulated.

W. M. MASON, Secretary.

The British Commercial Gas Association, 47, Victoria Street, Westminster.

*Fillets Embedded in Concrete.*  
To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—In a Memorandum issued a short time ago by the Local Government Board it is stated: "The floors of living-rooms can be constructed of deal boards either on joists or laid on concrete nailed to fillets embedded in the concrete, a layer of bituminous composition beneath the boards being desirable."

Fillets embedded in this way are certain, sooner or later—usually sooner—to acquire dry rot, and convey it to the flooring boards. Many instances of the kind have occurred. Not very long since, action was taken against an architect for allowing the levelling stumps



to be embedded in the concrete instead of seeing that they were withdrawn, which resulted in the stumps acquiring dry rot and conveying it to the floor boards, which were nailed direct to the concrete and had to be renewed. If the concrete is dry, and dry rubble is laid beneath it, bituminous material as advised is quite unnecessary, and only adds to the cost, the boards being nailed direct to the concrete.

THOMAS POTTER.

## POINTS IN UNDERPINNING.

BY L. E. WALKER.

THE subject of underpinning has not received the attention it deserves; and the usual specification, having stated that the work shall be "securely wedged up with slates and cement," dismisses the subject as complete. Luckily (generally for the adjoining owner) the average foreman selects for this work a man whom he knows to be careful and methodical, and thus it is seldom that a failure occurs. Too often, however, cracks appear at the junction of walls which have been underpinned with those which remain on their original foundations. The cause of these may usually be traced to a general settling down to its final bearing of the wall which has been underpinned, and is largely the outcome of the faulty method of executing the work, which, as stated above, is usually distinctly specified.

The usual procedure is shown in Figs. 1 to 3. Fig. 1 shows the top of the last brick "battered" ready for insertion; Fig. 2, the same when almost driven home. It will be noticed that during the process of insertion some of the top bed has been scraped off, and it is almost an impossibility for the brick to be placed in its final position without losing some of the mortar which should have formed the joint—hence the necessity for slate wedging. This, however, produces only a semblance of solidity, the real state of affairs being as shown in Fig. 3. The sketches represent only a one-brick wall, but in one of a greater width each component would ordinarily be treated in the same way, and instead of the weight being evenly distributed over

the wall built to receive it, it is concentrated on the points where these slate wedges occur. If the weight be considerable, these fail and the wall settles.

An operation of such importance is worthy of a more amplified specification, and the following is suggested as meeting the case:—

The walls shall be underpinned with approved hard bricks laid in cement mortar in the proportions of three of sand to one of cement, and shall be executed in alternate sections not exceeding four feet in length, or in such lesser lengths as the architect may direct.\* Each section must be allowed to remain at least three days after its completion before the intermediate or adjoining section is excavated.

The pinning up to be executed in receding courses with the bond so arranged as to break joint with the old work where possible, each brick being cut to a slightly wedge-shaped form, and forced into position, the cavity having been previously filled with cement mortar of the proportions specified.

Doubtless the reader has observed a bricklayer filling a putlog hole. The action in this case is precisely the same. When the brick is forced into position it displaces the mortar with which the cavity had been filled, and the latter (to lapse into the vernacular of the scaffold and use a vulgar but very expressive word) "spues" out, thus ensuring its solidity. As cement mortar acquires a strength far above that of any bricks likely to be used, no ill results need be anticipated due to the wedge form of the bricks.

Where the wall to be underpinned is isolated, as, for instance, over a newly inserted bressummer, the method shown in Fig. 4 will ensure a sound job. The shape of the brick has been exaggerated for the sake of clearness.

\* It is obvious that the lengths of the sections depend upon the condition of the work to be underpinned, and this must be determined by inspection.

## SUBURBAN HOUSE COMPETITION.

AS already announced, so much interest having been taken in our competition for plans and section of a suburban house suited to the needs of a small middle-class family, we decided to hold another competition for elevations based on the plans placed first. The revised scheme was published in our issue for last week, when full particulars of the new competition were also given. Prizes of £5 5s., £3 3s., and £2 2s. are offered for the designs placed first, second, and third respectively.

The drawings required are—

- Front elevation of a pair of houses.
- Back elevation of right-hand house.
- Side elevation of right-hand house.

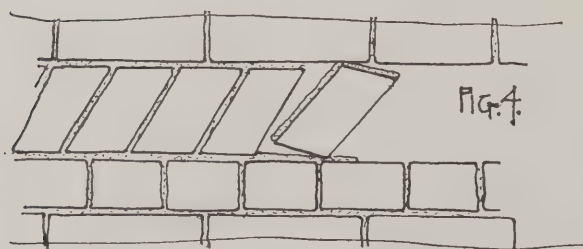
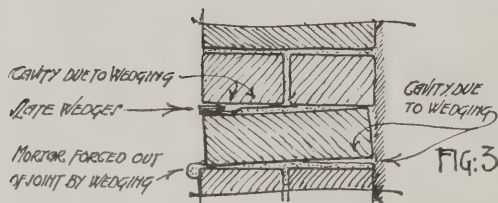
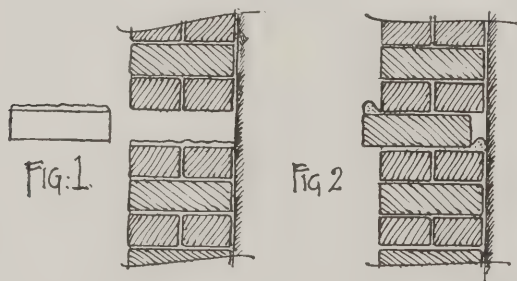
Drawings are to be sent in by July 11th next.

NOTE: Each design must have a coupon stuck on the back of it. In the present issue this coupon will be found on page xxiv. A similar coupon will be given in all our issues up to and including the issue for July 9th, and any one of these can be used. Competitors may send in as many designs as they wish, provided that each has a coupon on the back of it.

## OUR PLATES.

*South African War Memorial, Clonmel.*

THE memorial at Clonmel which is illustrated on page 632 commemorates the non-commissioned officers and men of the Royal Irish Regiment who were killed or died of wounds in the South African War. It is executed in Irish limestone, with a bronze panel and ornaments. The pedestal is triangular on plan. The memorial has a dignity which is rare among works of its class, and the architects (Messrs. R. Caulfield Orpen, R.H.A., and P. L. Dickinson, of Dublin) are to be congratulated on the result.







*Supplement to* THE ARCHITECTS' AND BUILDERS' JOURNAL, *Wednesday, June 18th, 1913.*



THE NEW ARTS BUILDING, MANCHESTER UNIVERSITY.

*(Royal Academy)*





RCY SCOTT WORTHINGTON, M.A., F.R.I.B.A., ARCHITECT.

*hibition, 1913.)*





*The Shaw Monument, Boston, Mass.*

Among American architects no one is more successful in general excellence of executed work than Messrs. McKim, Mead, and White. They have set up a very high standard, and continue to maintain it. The Shaw Monument at Boston, shown on page 641, is an excellent example. It is admirably composed, and the ornament displays a most attractive adaptation of classic motives. The monument was erected in honour of the Black Regiment which fought in the Civil War.

*La Bagatelle, Paris.*

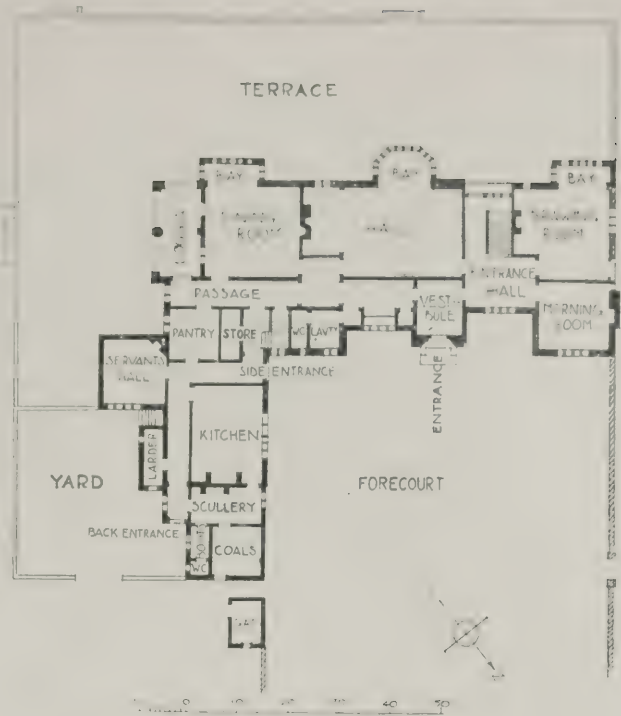
Particulars of this chaste little building—the outcome of a foolish wager—are given in the article on page 635.

*The Arts Building, Manchester University.*

On the Centre Plate of this issue is reproduced a perspective (exhibited at the Royal Academy) of the new building for the Faculty of Arts at Manchester which has been designed by Mr. Percy Scott Worthington, M.A., F.R.I.B.A. A scale drawing of the central portion of the façade is reproduced on pages 646 and 647. The new block is about to be erected in Lime Grove. The ground floor accommodation is shown by the plan below. It is so arranged that each department is self-contained. Most of the rooms face south, east, or west, so that they may not only get the benefit of all the sun that is to be had, but may also be quieter than if they faced the street which runs upon the north side. This has an advantage also from the point of view of design in that it is not necessary to crowd the front walls with large windows such as are necessary in lecture-rooms, and it has enabled the architect to obtain quiet wall spaces and a central mass marking the top-lighted hall which will give character and dignity to the building.

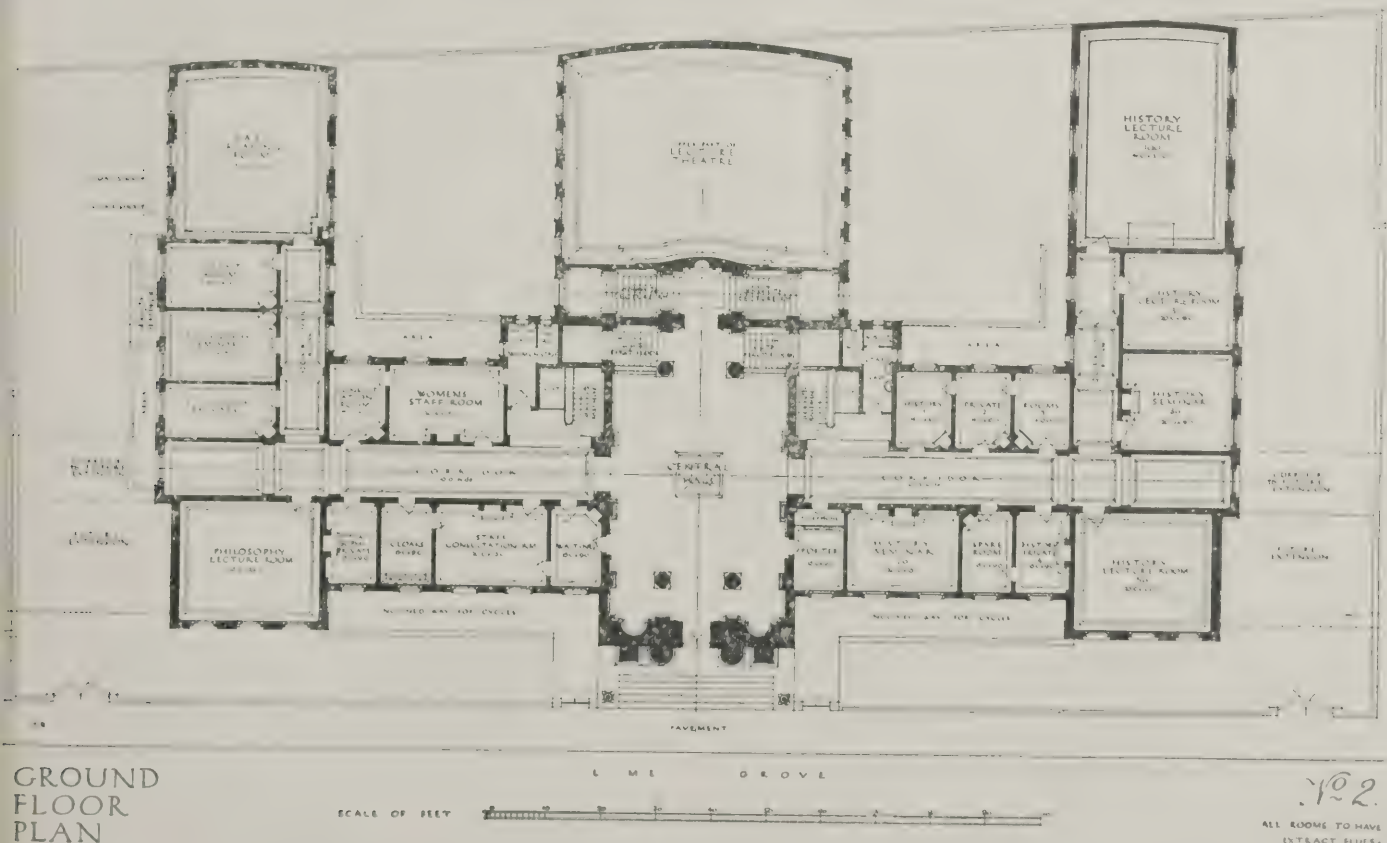
*"Hengrove," St. Leonards, Wendover, Bucks.*

This house, illustrated on page 645, stands on a well-wooded site on one of the highest points in Buckinghamshire. It is built of local hand-made grey and red 2 in. bricks and roofed with hand-made tiles from Surrey. The windows are glazed with lead lights and



"HENGROVE," ST. LEONARDS: GROUND-FLOOR PLAN.

fitted with wrought-iron casements. Everything externally has been kept as simple as possible so as to avoid excessive cost of maintenance. From a large central general living-room, panelled in oak, access can be gained to all the reception rooms without the necessity for passing into the more public service corridor. The dining-room is in close proximity to the kitchen wing, and opens into a large sunny loggia. Other features of the house include a long attic play-room in the roof and ample bedroom accommodation. The house is lighted by acetylene gas and heated throughout by hot-water. Mr. P. Morley Horder, F.R.I.B.A., of London, was the architect.



NEW BUILDING FOR THE FACULTY OF ARTS, MANCHESTER UNIVERSITY.  
PERCY SCOTT WORTHINGTON, F.S.A., F.R.I.B.A., ARCHITECT.

102

ALL ROOMS TO HAVE  
EXTRACT FLUES.



## HERE AND THERE.

A SHORT time ago I was sitting in a summer-house that had been new when George the Second ascended the English throne. The design was an extremely simple one, comprising no more than a conical thatched roof, supported by square posts, with a seat around half the interior, and plain panelling behind, the floor being laid with pebbles in cement, in a star pattern, with interweaving circles. In all this, it will be noted, there was nothing remarkable; it was, indeed, no more than an intelligent Georgian translation of what might have been done a century and a half before by any village carpenter working in the vernacular. But one might search a hundred modern gardens to discover anything so satisfying, both from within and without. In many an old garden pavilion you will find much the same elements of refinement that go to the making of such charm as this particular summer-house possesses. There is, to begin with, a complete absence of elaborate ornament; the lines are straight, the seat is supported on turned legs of very good outline, the arm-rest at either end flows down from the back in a sturdy scroll, and the panelling has a wide chamfer and a broad moulding. Compare this with what has been bequeathed to us by a generation that discovered the "monkey tree" and set out the tortuous carriage drive, with its serried ranks of lobelia and calceolaria. Can we forget that "rustic" creation of halved branches and logs, glistening with varnish, and, if funds allow, garnished with scraps of vivid red and blue glass? Capability Brown, and all he stood for, gave us this trivial and foolish ornament—a summer-house where the croquet mallet and the grass-cutter find congenial haven, but where hot humanity has perforce to share occupation with the spider.

If we seek the reason for such unhappy creations we shall find it, I think, chiefly in the mistaken idea that a summer-house is a garden object that must be made to look pretty: that is to say, its ostensible purpose of providing a shady retreat has been annulled for the sake of appearances. But the irony is that its usual effect is pitiful in the extreme, whereas there are many examples to show us that a summer-house may be both a delightful object to look at and a most attractive place to sit in. Here we may take a hint from those trellis porches that adorn the houses of a century ago. "Treillage" may not be within the range of expense, but trellis can be adopted for the simplest design, and, when overspread by a climbing rose or light greenery is capable of producing excellent results. The possibilities of trellis are not half exhausted yet, for the shapes into which it can be built up are multitudinous: albeit there must be no aping the fretworker's phantasy, which leads back to the slough.

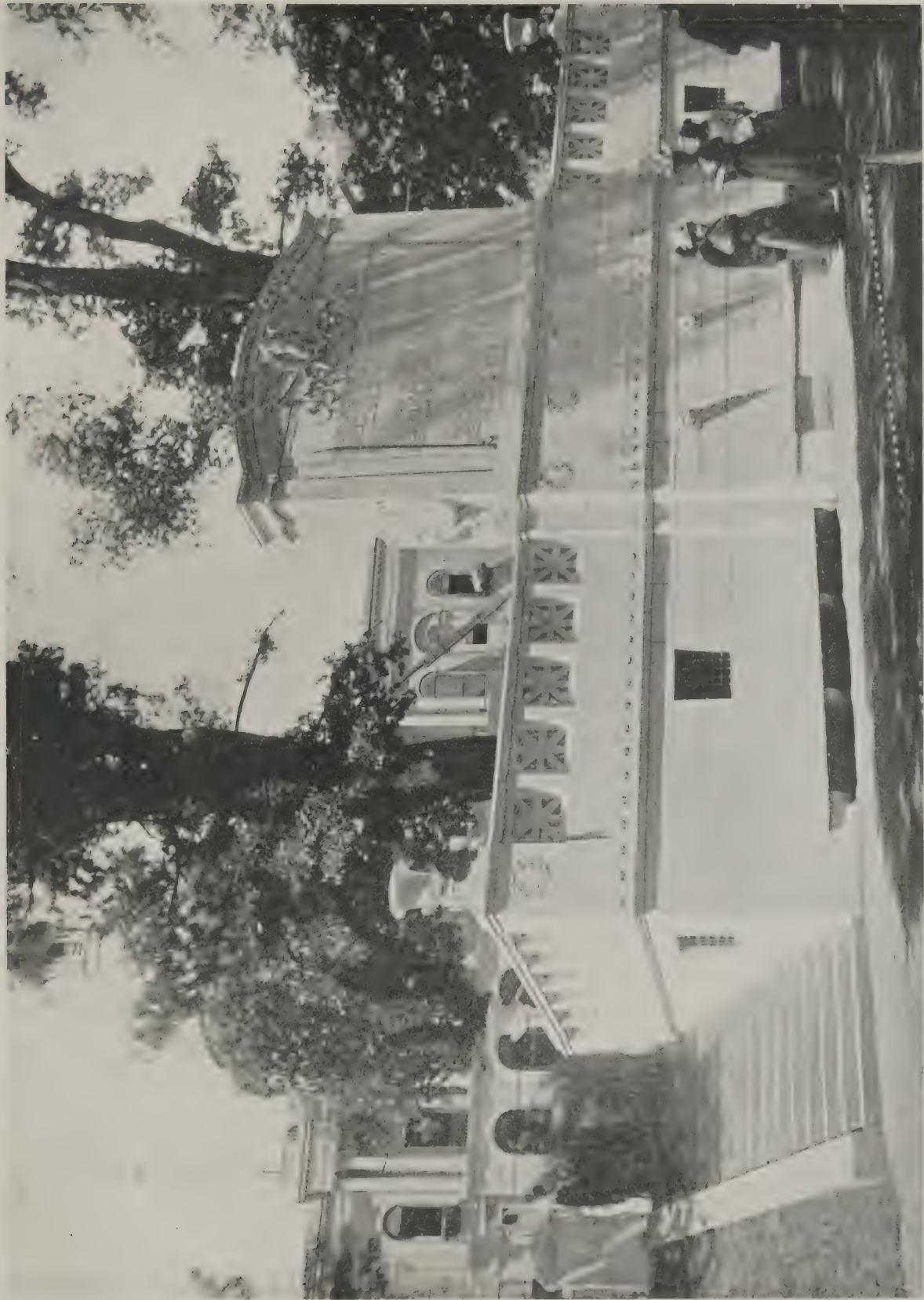
The growth of great cities and the difficulty of getting out of them every evening and getting back again every morning prompts me to make a suggestion. I have little belief in the idea that the future will see us—or those who are left after the motor omnibuses and the German air craft have done their worst—flitting on biplanes and monoplanes to our little homes in the country: we are much more likely to be shot along on a mono-rail from place to place, like the change in the grocer's shop. But supposing our towns to have grown so big that there was not sufficient time left to spend it in getting into and out of them daily (have we not heard of a London extending from Brighton to the Midlands?), then would be the opportunity for a new earth in an old heaven. Over sections of the city huge leg-towers of reinforced concrete would be set up, 500 ft. high, and built across them would be a mighty floor. Tons of earth would be spread on this

floor to a thickness of 20 ft., and in this fashion we should construct a new countryside overhead. Grass, trees, flowers, even streams (in appropriate asphalted beds) would all be there. Instead of spending half an hour in going out to the country, the jaded city dweller would simply go up to it in a minute, in an express lift. Fresh breezes would always be blowing across that air garden, and so good would be the draught that no revolving cowl or tallboy would ever need to disturb the neat serenity of the chimneys as shown on the architect's drawing. Suspended like Mahomet's coffin, this Upper Garden Suburb would have the most bracing attractions, and aerophile estate development companies would shower leaflets on the astonished world beneath. Business men might trudge over fifteen-hole golf courses oblivious to the Finsbury or Rotherhithe below, and the whole cult of garden suburb life might acquire a fresh impetus in the more vigorous air. Such mundane things as water-supply, sewerage, electricity, and food supply would all be accommodated in the hollow props of this new land. As for the people below, living in a constant twilight, they would be forerunners of Mr. Wells's underworld, of which we have already a glimpse in the subterranean floors, three, four, and more in number, that are included in some of our giant hotel buildings. But, in any case, it is impossible for me to meet all the points that might be raised against the scheme, any more than I could estimate the percentage which life assurance corporations might demand from dwellers in a place whose security was not everlasting as the hills. Suffice it for us to remember that conditions made it necessary in Ancient England for people to live in houses supported on piles—like those in the marshes of Glastonbury; and it is conceivable that conditions might create a Hanging Garden Suburb.

\* \* \* \*

The rumblings that have been going on for some time respecting the artist and the art-critic have come forth at last in a good deal of smoke, for the exit of which the "Morning Post" has provided an opportunity. But, for the most part, this word-battle of two opposing factions is not so entertaining as one might have expected. Mr. Spielmann, however, is an exception, and I take leave to extract something of what he has written. The caustic objection of the artist to the critic is very tersely expressed—the lay critic is detested because of his ignorance and the painter-critic because of his prejudice, while the art-journalist teaches nothing. But, so far as the last is concerned, why should he? It is not his business to instruct the painter, but simply to inform the public. He is not the artist's ambassador to the public, but the public's consul-general with the artists. As for the critics being accused as conspirators against modern art and art societies, that hardly accords with the former notion that "critics could be depended on to contradict one another," like doctors and lawyers. As a fact, art-history is full of internecine denunciation. Did not Michelangelo pronounce Botticelli "a fool and a blockhead in art"? Did not David Cox sneer at James Holland's gaily-coloured pictures as "striped ribbons," and Holland retort, "Thank God that *his* were not sage and onions"? Did not Degas tell Bouguereau to his face that his laboured pictures were "redolent of perspiration," and Bouguereau rejoin that his critic's work was not redolent even of that? One of the greatest of living foreign artists, Mr. Spielmann tells us, declared that Millet's (£40,000) "Angelus" was a "detestable painting which, but for its title, would only show two ill-drawn peasants lamenting their rotten potatoes." Truly, artists would fare worse at artists' hands than at the critics'. UBIQUE.



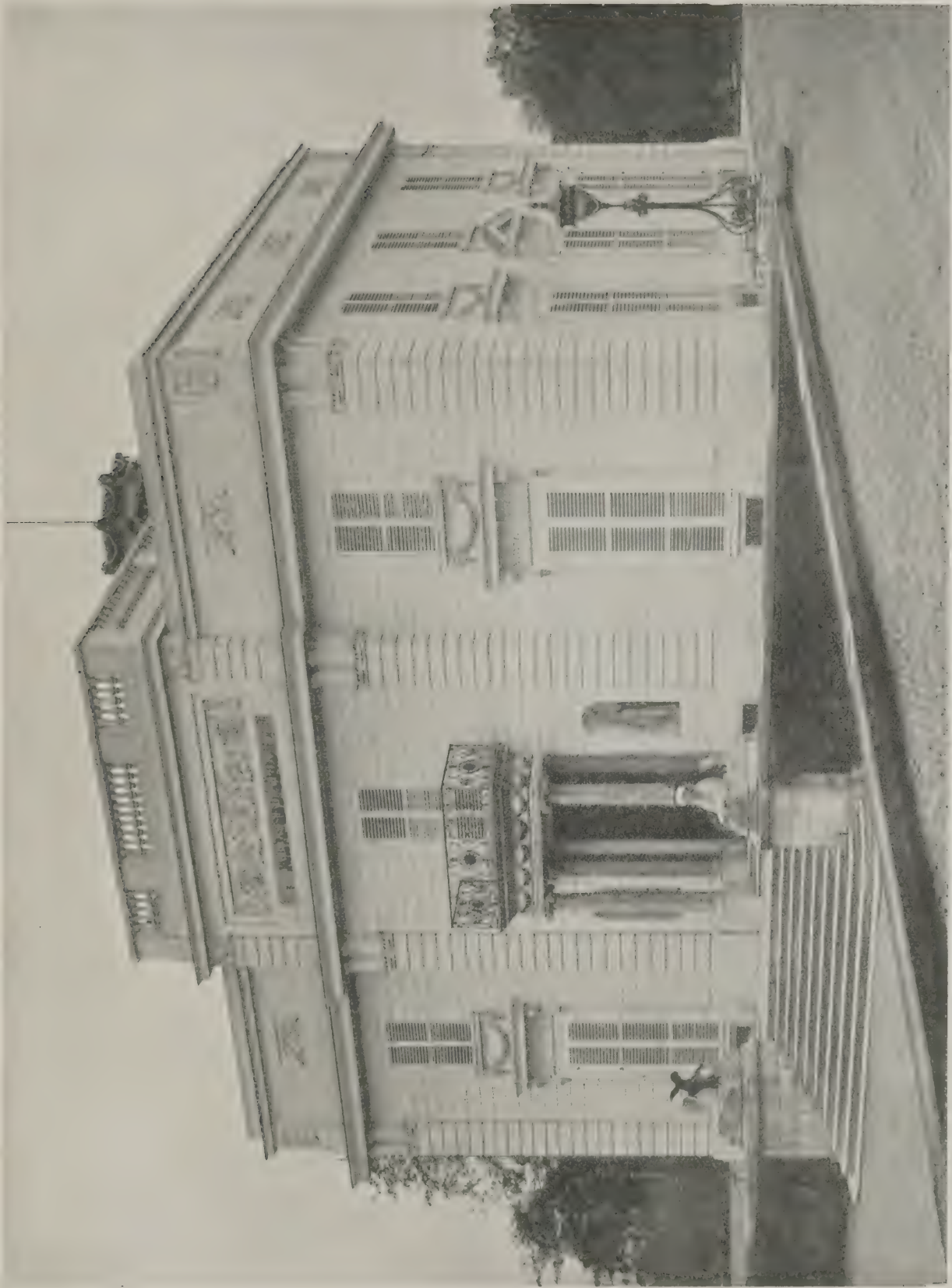


REAR VIEW OF THE SHAW MONUMENT, BOSTON, MASS. MCKIM, MEAD AND WHITE, ARCHITECTS.

(See page 639.)







LA BAGATELLE, PARIS: ENTRANCE FRONT. BELANGER, ARCHITECT.

(See page 639.)

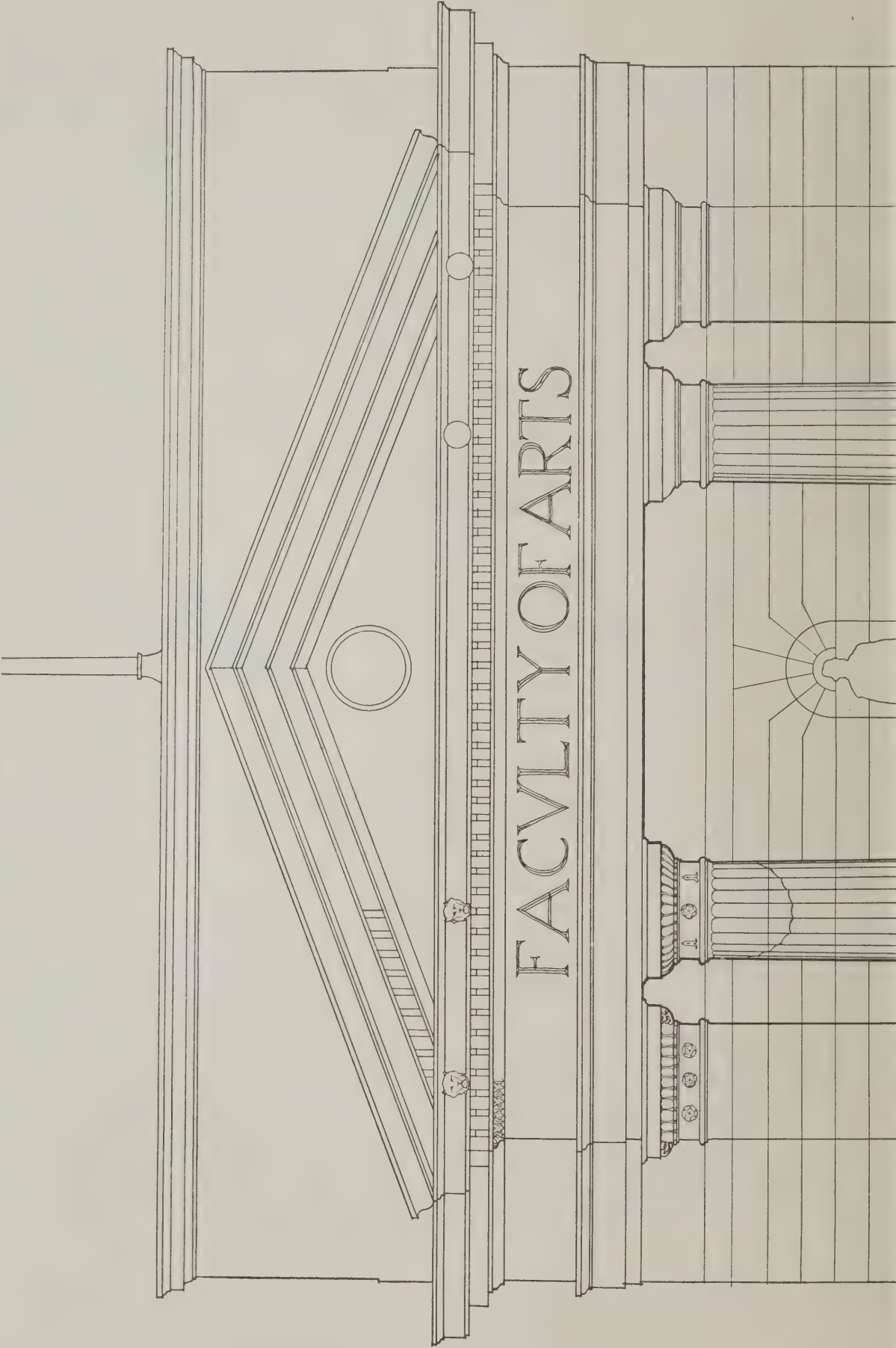




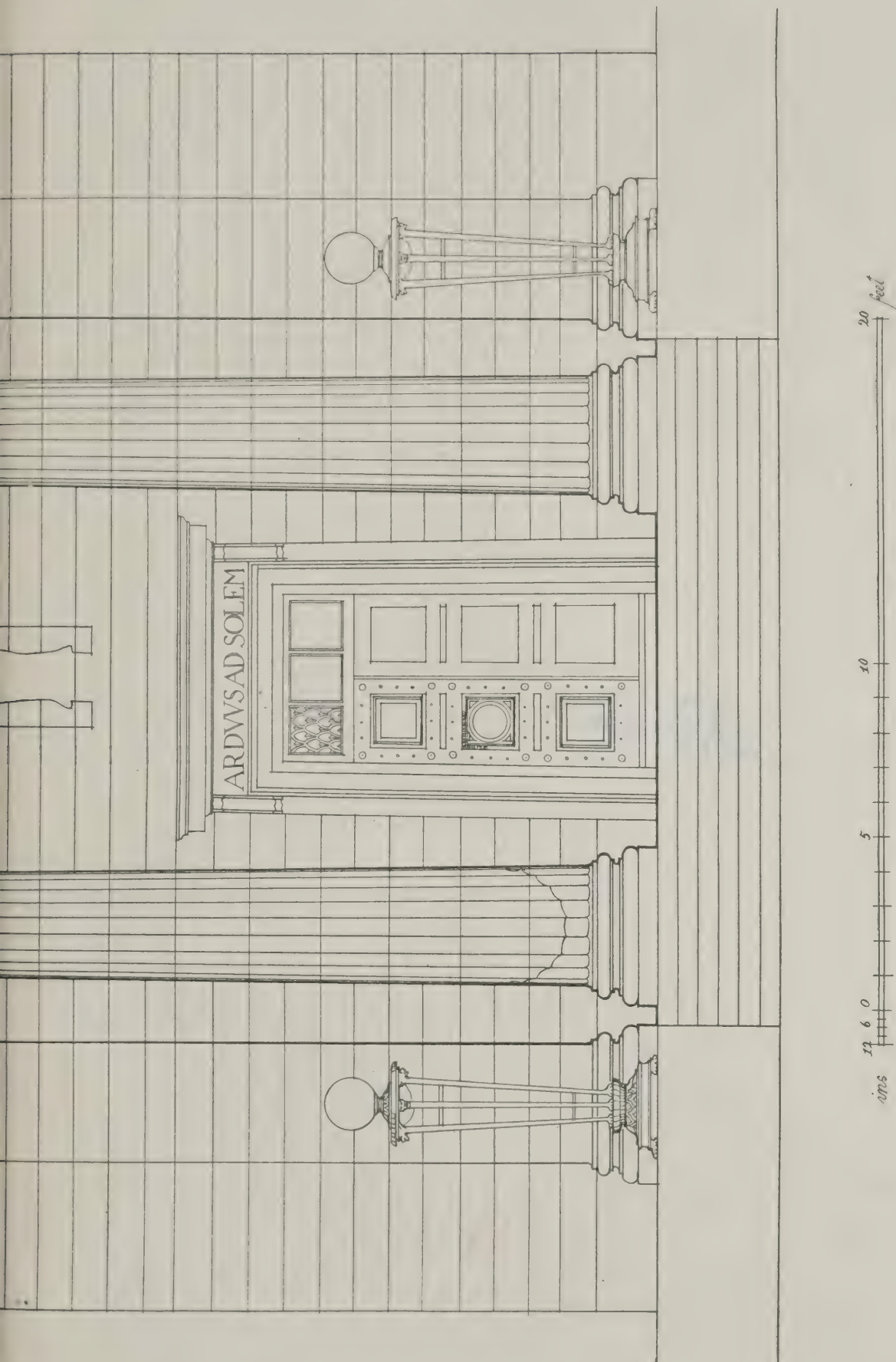


MODERN DOMESTIC ARCHITECTURE. HOUSES OF INTERMEDIATE SIZE. XIII.—“HENGROVE,” ST. LEONARDS, WENDOVER, BUCKS.  
P. MORLEY HORDER, F.R.I.B.A., ARCHITECT.

(See page 630.)







NEW BUILDING FOR THE FACULTY OF ARTS, MANCHESTER UNIVERSITY: DETAIL OF CENTRE PORTION OF FAÇADE.  
 PERCY SCOTT WORTHINGTON, M.A., F.R.I.B.A., ARCHITECT.

(See page 639)

## COMPETITIONS.

### *New Canadian Parliament Buildings.*

The Canadian Government has decided to erect a large group of new Government buildings at Ottawa to provide accommodation for the rapidly growing administrative activities of the country. A magnificent site has been selected along the top of the high cliffs overlooking the Ottawa River, to the west of the present group of Parliament buildings. A competition, limited to the architects of the British Empire, will take place for the selection of the design, and a jury of three architects has been approved—two Canadian and one British—for the purpose of judging the designs sent in. The Council of the Royal Institute of British Architects were asked to appoint one of these three assessors, and their choice has fallen upon Mr. T. E. Colcutt, who is the designer of the Imperial Institute, the Palace Theatre, the Savoy Hotel, and many other well-known buildings. Mr. Colcutt, who is a Past President of the R.I.B.A., will probably leave for Canada in a few days to draw up the conditions of the competition.

### *High School, Motherwell.*

Seventy-four sets of designs were submitted in this competition, of which the assessor was Dr. J. J. Burnet, F.R.I.B.A., whose award (which has been accepted by the Dalziel School Board) is as follows: 1, Mr. S. B. Russell, London; 2 (£40), Messrs. Cleland and Hayward, Wolverhampton; 3 (£30), Messrs. Crouch, Butler, and Savage, Birmingham; 4 (£20), Mr. Arnold Mitchell, London.

### *Dwellings, Bradford.*

It is proposed by the Health Committee of Bradford Town Council to acquire about fifty acres near Odsall Top, on which to build 200 houses, and to offer premiums of £300, £200, and £100 for plans, but the scheme is still under consideration.

### *Church, Schools, and Institute, Coventry.*

The limited competition recently held for the above has been settled in favour of Messrs. George Baines and Son, Strand, W.C.

## COMPETITIONS OPEN.

**JULY 1.**—ROYAL PALACE AND LAW COURTS, SOFIA.—Particulars, Commercial Intelligence Branch, Board of Trade, Basinghall Street, E.C.

**JULY 20.**—CARD ILLUSTRATING CONSTRUCTIONAL STEELWORK AND REINFORCED CONCRETE.—Messrs. D. G. Somerville and Co., 120, Victoria Street, Westminster, invite architects and designers to submit a card illustrating their constructional steelwork and reinforced concrete according to conditions drawn up by Mr. Herbert W. Wills, F.R.I.B.A., who will act as assessor. Particulars (1s.) from above address.

**JULY 24.**—SANATORIUM, FAZAKERLEY.—Corporation of Liverpool invite designs for a sanatorium to be erected at Fazakerley, and to contain 250 beds. Premiums 150, 100, and 50 guineas. Particulars (two guineas, returnable), Edward R. Pickmore, Town Clerk, Municipal Offices, Liverpool. [NOTE: *The date has been extended from that previously announced.*]

**SEPTEMBER 1.**—TOWN PLANNING, HIGH WYCOMBE.—Schemes for the town planning of the borough are invited by the Borough Council. Premiums £25, £10,

and £5. Particulars, T. J. Rushbrooke, Borough Surveyor, High Wycombe.

**NO DATE.**—COTTAGE HOSPITAL, BRIDPORT.—Designs for a cottage hospital of fourteen beds are invited. Particulars (£1 1s., returnable) from A. Baker, secretary, 12, Victoria Grove, Bridport, Dorset.

## NEWS ITEMS.

### *The Gainsborough Statue.*

A marble statue of Gainsborough, by Mr. Bertram Mackennal, A.R.A., was unveiled at Sudbury, the painter's native town, on June 10th, by the Princess Louise.

### *Mr. J. J. Burnet and the Beaux-Arts.*

Mr. J. J. Burnet, A.R.S.A., F.R.I.B.A., has been appointed a corresponding member of the Institut des Beaux-Arts of France, a somewhat unusual distinction for a British architect. Mr. Burnet is a corresponding member of several other foreign societies and is an Hon. LL.D. of Glasgow University.

### *New F.S.A.'s.*

At the last meeting of the Society of Antiquaries the following were elected as ordinary Fellows: The Rev. J. F. Chanter, Major Fane Lambarde, and Messrs. A. W. Clapham, W. V. Crake, A. C. Dickie, C. H. Hopwood, M. E. Hughes-Hughes, C. W. Dyson Perrins, Maurice Rosenheim, Frank Simpson, and Henry Vassall. As an Honorary Fellow: The Marquess de Cerralbo.

### *Picture Theatre, Bradford.*

We are requested to state that the picture theatre at Bradford, to which references were made on page 603 of our issue for June 4th, and on page 628 last week, and of which Messrs. Greenall and Cole, of Manchester, are the architects, is not named the Alhambra. For a proposed theatre of varieties at Bradford, Yorks, which is to be designated the Alhambra, Messrs. Chadwick and Watson, Crown Chambers, 9, Albion Street, Leeds, are the architects. We regret the error, which, however, did not originate with us.

### *New Model of Old Whitehall.*

Mr. John B. Thorp, whose well-known models of Old London are now being permanently exhibited at the London Museum, has received a commission from Colonel Leatham to prepare a model of Whitehall in the reign of Charles the First. Not only has the year been fixed upon, but the actual day, as in the model will be shown the scaffold on which Charles the First was executed on January 30th, 1649. The model is to be presented to the Royal United Service Institution by Colonel Leatham.

### *Khartum Cathedral.*

The last tile of the roof of Khartum Cathedral was laid in position on May 20th. This completes the work at present in hand. It will be remembered that the building was not completed when consecrated by the Bishop of London on January 26th, 1912. The inner roof of brick vaulting was on, but the west end was complete only to the gallery, on the front edge of which a temporary brick wall was carried up to the vaulting. The rest of the stone work at the west end has now been built, and the outer roof of reinforced concrete with red tiles outside is finished. This leaves the tower and the marble floor, for which there is no money, to be undertaken later. Mr. R. Weir Schultz is the architect.

## THE R.I.B.A. ANNUAL ELECTIONS.

At the business meeting held on Monday, June 9th, the Officers, Council, and Standing Committees for the Session 1913-14 were elected as follows:—

### *The Council.*

PRESIDENT.—Reginald Blomfield, A.R.A.  
VICE-PRESIDENTS.—A. W. S. Cross, George Hubbard, H. V. Lanchester, Ernest Newton.  
HON. SECRETARY.—E. Guy Dawber.  
PAST PRESIDENTS.—T. E. Colcutt, Leonard Stokes.

### MEMBERS OF COUNCIL.

H. P. Adams.	Sydney Perks.
Walter Cave.	C. H. B. Quennell.
T. E. Cooper.	E. A. Rickards.
H. P. Burke Downing.	H. D. Searles-Wood.
W. A. Forsyth.	W. J. Tapper.
Henry T. Hare.	Septimus Warwick.
Gerald C. Horsley.	W. Henry White.
Arthur Keen.	E. W. Wimperis.
C. Stanley Peach.	William Woodward.

ASSOCIATE-MEMBERS OF COUNCIL.

Robert Atkinson.	Sidney K. Greenslade.
Leonard Elkington.	Edwin Gunn.
K. Gammell.	Stanley Hall.

REPRESENTATIVES OF ALLIED SOCIETIES.—John Brooke (Manchester Society of Architects); G. Haswell Grayson (Liverpool Architectural Society); A. H. Hind (Leicester and Leicestershire Society of Architects); William Milburn (Northern Architectural Association); A. E. Murray (Royal Institute of Architects of Ireland); G. H. Oatley (Bristol Society of Architects); A. N. Paterson (Glasgow Institute of Architects); E. R. E. Sutton (Nottingham Architectural Society); A. F. Watson (Sheffield Society of Architects).

REPRESENTATIVE OF THE ARCHITECTURAL ASSOCIATION.—W. Curtis Green.

### *The Standing Committees.*

ART.	
Fellows:	H. Heathcote Statham.
E. Guy Dawber.	W. J. Tapper.
W. A. Forsyth.	Associates:
J. A. Gotch.	Robert Atkinson.
H. T. Hare.	Matthew J. Dawson.
Gerald C. Horsley.	Sidney K. Greenslade.
H. V. Lanchester.	A. W. Papworth.
W. R. Lethaby.	Philip Webb.
Halsey R. Ricardo.	A. Needham Wilson.

LITERATURE.	
Fellows:	E. P. Warren.
D. Theodore Fyfe.	Paul Waterhouse.
D. Barclay Niven.	Associates:
G. H. Fellowes Prynn.	M. S. Briggs.
Harry Sirr.	Walter Millard.
R. Phené Spiers.	W. G. Newton.
Charles S. Spooner.	Horatio Porter.
C. Harrison Townsend.	C. E. Sayer.
F. W. Troup.	W. H. Ward.

PRACTICE.	
Fellows:	W. Henry White.
Max Clarke.	William Woodward.
H. O. Cresswell.	Associates:
Matt. Garbutt.	H. W. Cubitt.
Edward Greenop.	P. M. Fraser.
George Hubbard.	K. Gammell.
Sydney Perks.	Edwin Gunn.
H. D. Searles-Wood.	C. E. Hutchinson.
A. Saxon Snell.	Herbert Shepherd.

SCIENCE.	
Fellows:	R. Elsey Smith.
Alfred Conder.	Robert Watson.
W. E. V. Crompton.	Associates:
Bernard Dicksee.	Robert J. Angel.
F. E. Farrow.	W. R. Davidge.
Ernest Flint.	G. Leonard Elkington.
George Hornblower.	C. J. Marshall.
A. H. Munby.	D. L. Solomon.
C. Stanley Peach.	A. Young.

AUDITORS.—John Hudson, W. H. Burt.

At the same meeting the election of the following members was announced:—

### *Fellows.*

W. E. Cauld (Fraserburgh).	K. G. Rea (Montreal).
A. H. Goslett (London, W.C.).	G. A. Ross (Montreal).
	W. J. Nash (Neath).

The following were Licentiates who had passed the examination qualifying for candidature:

L. W. Barnard (Cheltenham).	E. A. Hunt (London, W.C.).
H. H. Brown (Manchester).	W. L. Lucas (Westminster).
H. G. Crothall (Westminster).	R. Barry Parker (Letchworth).
C. A. C. Greene (Sunderland).	David Salmund (Glasgow).
W. Hunt (London, W.C.).	Ernest G. Theakston (London, E.C.).

### *Associates.*

J. C. G. Brault (Montreal).	W. W. Houston (Bel-fast).
G. A. Cope (Highgate, N.).	L. D. Martyn (London, S.W.).
H. R. Cowley (South-end-on-Sea).	C. R. Tetley (Montreal).
A. R. Daggart (Montreal).	Thomas Walker (Derby).
F. R. Foster (Montreal).	Albert Wilby (Hampstead, N.W.).



## PROJECTED NEW WORKS.

*L.C.C. School Buildings.*

The London County Council are seeking Parliamentary powers for the acquisition of one hundred and five sites in connection with their proposal to spend £4,500,000 in building new schools and enlarging old ones.

*Housing Scheme, Sidmouth.*

Sidmouth Urban District Council are considering plans, which have been prepared by Mr. Sampson, architect, for a housing scheme upon which the estimated expenditure is £11,300.

*Shipbuilding Yard, Farrow.*

A scheme for an important extension in connection with Palmer's Shipbuilding Yard, Farrow, has been decided upon by the firm, and the North-Eastern Railway new siding, etc., will be constructed at a cost of over £25,000.

*Baths, Torquay.*

Mr. A. Taylor, of Bath, has prepared designs for a system of medical baths which the Torquay Town Council have decided to establish, at an estimated cost of about £15,000, including a swimming bath.

*Technical School Extension, Birmingham.*

An important scheme for the enlargement of the Municipal Technical School in Suffolk Street has been submitted to the Birmingham City Council by the Education Committee. The work is estimated to cost about £105,000 and will take three years to complete.

*Bridge, Costessey.*

Forehoe District Council have asked Mr. A. F. Scott, architect, of Norwich, to prepare and submit plans for a reinforced-concrete vehicular bridge to be erected at Water Lane Ford, Costessey, near Norwich.

*Memorial at the West London Hospital.*

As a memorial to the late Duke of Abercorn, the former president and chairman of the West London Hospital, Hammersmith, it is proposed to build new accommodation for the nursing staff and to name it "The Abercorn Home for Nurses." The cost is estimated at about £12,000.

*New Airship Factory.*

Messrs. Vickers, Ltd., of Barrow-in-Furness, propose to construct airship sheds on a site on Walney Island, separated from Barrow by the Walney channel. The site is at the north end of the island, almost adjoining the Walney Fort.

*Courts Extension, Birmingham.*

Birmingham City Council having referred back a proposal of its Watch Committee to enlarge the Victoria Courts at a cost of £12,850, and to extend the central police department at a cost of £1,053, the justices have urged that this decision was made under a misapprehension of the facts. The scheme is therefore likely to be reconsidered at an early date.

*New Baths, Darwen.*

A deputation of the Health Committee of the Darwen Town Council has been appointed to visit certain towns and obtain information in regard to new baths, with a view to instructing the borough surveyor to prepare plans and estimates for new baths at Darwen. The plans and estimates are to be submitted to the Health

Committee in two months' time. The site of the proposed new baths is at the junction of Union Street and Robin Bank, the Corporation possessing spare land which adjoins the Electricity Works.

*A New London Hotel.*

Mr. Henry Tanner, F.R.I.B.A., and Mr. F. J. Wills are the joint architects of the huge new hotel which is being erected in Piccadilly for Messrs. J. Lyons and Co., Ltd. Mr. Wills is also the architect for the projected "Corner House" in the Strand.

*Cambridge Picture Playhouse.*

The contract for this building, which was opened to the public a few days ago, has been carried out by Messrs. F. Pitcher, Ltd., London, W., and amounted to £4,246. Accommodation is provided for about 900 persons. The architects are Messrs. George Baines and Son, of the Strand, W.C.

*Stirling Station Reconstruction.*

Work is to be at once begun on the reconstruction of Stirling Station, the contract for which has been placed with Messrs. P. and W. Anderson, Ltd., contractors, of Glasgow. The buildings will be in the Scottish Baronial style and the main material will be white freestone. Mr. W. A. Paterson, chief engineer to the Caledonian Railway Company, will superintend the work.

*Schools and Mills, Haslingden.*

Work about to be entered upon at Haslingden includes the erection of a new Council school, to cost over £19,000, extensions to two mills, and the erection of a branch for the Manchester and County Bank with three shops. In addition to these the Council have in the last few months passed plans for seventy-four houses, although the average number of houses erected in each of the last sixteen years is under thirty-five. Unfortunately the strike of builders' labourers for an advance from 6d. to 6½d. an hour is delaying commencement upon much of this work.

*New Municipal Works.*

The Local Government Board have decided to hold, or have recently held, as the respective dates indicate, inquiries into proposed expenditure by public bodies as follows:—Sewerage, drainage, and sewage disposal. — Birmingham, Tame, and Rea District Drainage Board, £37,672; Horsham Rural District Council, £1,000 for Ifield (June 10). Street improvements, public walks, etc. Rotherham Rural District Council, £9,421; Colchester Borough Council, £3,475; Edmonton Urban District Council, £1,575; Widnes Borough Council, £4,400; Walthamstow Urban District Council, £31,405 (June 12). Various.—East Stow Rural District Council, housing, £2,400, £1,500, and £950 (June 5 and 6); West Bromwich Borough Council, £1,400 (June 9); Colchester Borough Council, electricity undertaking, £7,660; Holland County Council, piling, £1,000 (June 10); Southend-on-Sea Borough Council, boilers and other plant for electricity works, £11,000, depot, £1,350 (June 11); Walthamstow Urban District Council, electricity undertaking, £3,756; Mallwyd Urban District Council, reconstruction of Walton Bridge, no amount stated; Kettering Urban District Council, baths extensions, £5,600, new feeder, £1,600 (June 12); Cumberland County Council, sea defences, £8,300 (June 13).

## IN PARLIAMENT.

(By Our Press Gallery Representative.)

*The Lambeth Bridge.*

On Wednesday last a Select Committee of the House of Commons, of which Mr. H. Craig was chairman, rejected the Bill promoted by the London County Council to authorise the erection of a new steel bridge in place of the existing bridge across the Thames at Lambeth. A memorandum was submitted from the Chief Commissioner of Police relating to the regulation of traffic, and in a communication which accompanied it the Home Secretary made a suggestion that the Committee should consider the æsthetic aspect of the proposal. Mr. R. Bannatyne, of the Home Office, in evidence, stated that a good deal of interest was manifested last year in regard to the æsthetic appearance of bridges across the Thames, when the new St. Paul's Bridge was being discussed. The Home Secretary had therefore thought it right to raise the point for the consideration of the Committee in connection with the present Bill. The Home Secretary did not care to express an opinion on the subject beyond suggesting that as a rule a stone bridge was infinitely preferable to an iron structure. In cross-examination he admitted that probably the Department had not taken into their consideration the fact that a stone bridge in that situation would cost half a million more to build, but it was for the promoters to point that out as an argument against the building of a stone bridge. Chief Constable G. L. Craik, of the Metropolitan Police, criticised the design of the bridge from the point of view of the regulation of traffic. He was of opinion that the bridge would not provide a first-class arterial thoroughfare across the river. In cross-examination, he admitted that it would serve as a relief for the traffic crossing the bridges at Westminster and Vauxhall. The Committee decided that the preamble of the Bill had not been proved, and accordingly the Bill was rejected. In reply to counsel the chairman stated that the opinion of the Committee was that the bridge, according to the design submitted, was rather too large for the present requirements if the approaches remained as they were, but was not large enough if the route was developed by street improvements.

*Builders and Land Taxes.*

In the House of Commons Mr. Leach asked the Financial Secretary to the Treasury what amount in tax on his profit a builder would pay who erected a number of houses on leasehold land and immediately sold them at a profit of £1,200, but retained the lease of the land, and what amount of tax must the same builder pay if he sold the ground rent of the houses at an improved annual rent of £50.

Mr. Masterman replied: The sale of a building *in situ*, apart from the land or any interest in the land upon which the building stands, is a transaction unknown to English law. I assume that the transactions to which he refers consist of (a) sub-leases of the land and the buildings erected by the builder for practically the same term as the original lease for a consideration consisting of a capital sum and an improved ground rent; and (b) a sale of the improved ground rent, including the nominal reversion, for a capital sum. On this hypothesis no duty would be payable in respect of the first transaction, unless either the market value of the bare site had increased or the consideration covenanted to be paid were demonstrably in excess of the fair market value of the



leasehold interest. As regards the second transaction no duty would be payable, the statutory interest in the land being *ex hypothesi* merely a nominal reversion.

Mr. Leach asked how much tax on his profit a builder would pay who bought a piece of land for £1,000, covered it with houses, and then sold both land and houses at a profit of £1,000.

Mr. Masterman replied that the data furnished by Mr. Leach were quite insufficient to enable him to give a definite reply to the question, but on the assumption that there had been no increase in the market value of the land since the date of the builder's purchase, and that the price he realised did not demonstrably exceed the fair value of the land and buildings, no duty would be payable.

#### *Cost of Extinguishing Fires.*

A Bill has been introduced in the House of Commons by Sir Thomas Roe to empower local authorities to recover from insurance companies and owners of property the expenses of the attendance of fire engines and fire brigades at fires, whether within or without their districts, and to make charges for such attendance.

#### *Rating of Site Values.*

In the House of Commons on June 3rd Mr. Wedgwood moved for leave to introduce a Bill to confer additional powers of rating upon local authorities. He said the Bill gave to local authorities power to require the officials of Somerset House to supply them with the valuations made under the Budget of 1909-10 and any subsequent revisions of them. Having been supplied with the full site value of each hereditament in their districts, local authorities would in effect be enabled to add a new column to the existing rate-book. There would be shown the names of the occupier of each hereditament, the position and annual value of their hereditament, the annual value of the land and the building together, and then in the new column the full site value. Then power was given to levy the rates, not on the annual value of the land and building together, but between the annual value of the land and building together and the new site value in such proportion as they chose. The object of the Bill, of course, was to exempt improvements from rating and in that way to enable local authorities to do something to assist in opening up new industries in their districts by which fresh opportunities of employment would be offered to the people. The amount of rates thus remitted would have to be made up by the owners of empties, the owners of undeveloped land, and the owners of undeveloped mills. These people would be invited to make up for the remission of rates on new factories and improvements, and where they were not putting their land to the best use or were keeping it idle, they would not only make up to the overburdened ratepayer part of his burden, but would have a strong inducement to part with their land and put it to its proper use.

Sir G. Younger (Ayr Burghs, Opp.) opposed the motion. Although, he said, there were anomalies in the rating system now they would be far greater under the proposals in this Bill. The whole scheme was chimerical and absurd.

After a division in which 203 voted for and 95 against the motion, the Bill was then brought in and read a first time.

It will be seen that the Bill, involving consequences that at present do not seem to have been at all adequately realised, is certain to arouse keen opposition, which, as usual, will be most vigorously pressed on the always crucial occasion of the second reading.

## MOTOR NOTES FOR BUILDERS AND ARCHITECTS.

### COMMERCIAL VEHICLE INSURANCE.

[Specially Contributed.]

WHEN purchasing a motor vehicle, or a fleet of trucks, one of the points often quite ignored in the mind of the buyer is the question of insurance. He very rarely stops to consider whether the payment of insurance premiums will affect the paying utility of his vehicles. He buys the trucks and figures out the insurance costs afterwards.

Insurance rates are high and the consideration of the subject involves the calculation of big figures. Insurance is a vital matter, just as important as repair and operating expenses, and certainly the most important of the fixed charges incidental to the upkeep of a motor truck. Consequently it should be one of the foremost points to receive the attention of the purchaser. According to the town or city in which the truck is to operate so will the insurance rates vary, and quite as much are they dependent on the special service for which the truck is bought.

People always object to paying out money when there is a chance of its never being repaid. Some men consider the payment of insurance premiums as a voluntary charity to rich corporations. But do they always consider the moral effect that the payment of insurance premiums has on one's mind? Safeguards are worth purchasing, even if they are invisible, and although accidents may never be forthcoming, there is a sense of security behind the protecting wall of an insurance policy that fosters clearness of vision by way of freedom from unnecessary worry. A man without insurance on his trucks is for ever in a maze of wondering whether or not his trucks will suffer from tempestuous drivers or blind pedestrians. He may seek to drown the thought by building up an emergency fund in case of accident, and buoy himself up with the comfortable thought that if he is favoured by fortune that fund will serve to mitigate the expenses of the ensuing year. Yet emergency funds are soon lost in the all-devouring whirlpool of liability indemnity. The most careful driver cannot avoid people who persist in running into his truck. The most ingratiating man cannot persuade an uninjured person from trying his luck in the courts and appealing for compensation for wrongs done to his internal system.

The other side of the question must, however, be considered. Insurance rates are undoubtedly high and a man can only be called a fool who pays premiums for every kind of insurance without the smallest particle of consideration as to the advisability of taking out each policy. A man's mental attitude toward the fear of accident is a big factor in the choice between insuring and not insuring. His past experience may have proved to him the folly of paying out large sums each year to insure himself against accidents that persist in treating him with disdain, keeping away from the territory in which his vehicles operate.

Insurance must be left entirely to personal judgment, and personal judgment must be founded on an analysis of conditions and costs. Above all, find out everything about truck insurance, and make an exceedingly careful and exhaustive study of the terms of the policy. The insurance company's offices should not be gone into blindfolded. It is the duty of the insurance agent to sell, and naturally he will have a splendid series of arguments as to

why such-and-such policies should be taken. But the truck owner, if he has studied the subject, should listen to those arguments and go away. He will then weigh the pros and cons in each separate case, and form his opinion on his own knowledge of the special conditions that will affect the truck he is operating and the general conditions which have been related to him by the insurance agent. The question should be examined through a microscope revealing balances, in the scales of which are placed the possibilities of mischance to the truck and the favourable conditions afforded by work done by the truck, driver, and the district of operation. Only after such careful analysis can a correct idea be formed on the subject. Any time spent on such analysis by a truck owner is amply repaid.

#### *Bad Results Caused by Mismanagement.*

A most important factor to be considered is when a single machine, or even a few machines, may be sent to an isolated locality to be operated without any advance instructions, and in many instances where those in charge of the new equipment have absolutely no knowledge of its peculiarities, gross misapplication has resulted, with the net result that the employment of machines is vigorously condemned, whereas the blame justly rests upon the obvious mismanagement.

Where purchases are made indiscriminately, it is frequently found at the operating points that as the motor track equipment increases the installation is largely made up of a variety of different makes and sizes, which do not harmonise and which have little, if any, relation to the work-performance for which they are intended. These mongrel installations also have the disadvantage that a separate supply of repair parts for each make must be carried in stock, with consequent duplicated investment, and the chances that the mechanical help will not be so well qualified to take care of a varied equipment as it would be if the equipment were standardised and opportunity afforded to locate consistently such defects as might develop and eradicate them by scientific effort in the direction of the specific trouble. It will be quite evident that in these mixed equipments there is no logical or rational effort made to study deficiencies when they arise, but that due to what might be regarded as a state of demoralisation on the part of the mechanical department taking care of these mixed equipments, trouble and breakage is looked upon as if it were to be expected, and no other effort is made than to concern itself continually with current repairs from week to week or the replacement of parts as they break or wear out, where, under a properly selected, standardised, and uniform equipment, the occurrence of trouble would be regarded as exceptional and a consistent effort would exist towards reducing it to a minimum.

[Corporations and contractors being now among the chief users of motor conveyances, the utility of these notes by a specialist will be obvious. Architects also have a continually increasing personal and professional interest in the subject, upon which our contributor is prepared to give advice, based upon experience that is both intimate and comprehensive.]



# CONCRETE AND STEEL SECTION.

(MONTHLY.)

## THE CALCULATION OF REINFORCED CONCRETE.\*

Any attempt to reduce the amount of intricate calculation required for reinforced concrete is worthy of the attention of the student and of the designer; not merely because unnecessary figures are a source of mental fatigue and possible error which everyone would desire to reduce, but more especially because mathematical short cuts are often based upon assumptions of doubtful accuracy and should always be carefully tested. Although this work scarcely fulfils its object of providing a reliable ready reckoner for reinforced concrete, yet the charm of its clear expression is undeniable and the careful completeness of its terse deductions should be instructive to those who are endeavouring to clear the subject of the fog of unnecessary mathematics. Seeing that the book is written by a manufacturer of hydraulic lime, it is worthy of note that a neat statement defining the position of the neutral axis in homogeneous sections of material of varying stiffness should be claimed by the author as being a direct deduction from the results of the daily tests practised in his industry—an unconscious but eloquent testimony to the scientifically thorough methods pursued in French cement-testing laboratories.

This rule, "le plan des fibres neutres partage la hauteur du prisme suivant le rapport inverse des racines carrées des coefficients de traction et de compression," which may be expressed briefly as

$$\frac{N}{d - N} = \frac{E_t}{E_c} \text{ or } N = d \sqrt{\frac{E_t}{E_c}} \text{ in homo-}$$

geneous sections, can be deduced also from ordinary beam theory, and may be noted as one which may prove useful if methods come into vogue of calculating the deflection of reinforced concrete beams with due allowance for the tensile strength of the concrete. Using this as a starting-point, M. Nivet bases upon the principles which govern homogeneous sections a very simple statement of what he considers to be the mechanics of reinforced concrete, and expresses the results in a concise series of tables for the selection of suitable sections for given loadings.

Unfortunately, however, he makes certain assumptions which, although undoubtedly attractive, are nevertheless inaccurate. The first is that the strength of an unsymmetrical section (such as a T) can be expressed as twice that of either of the two symmetrical sections which can be formed by doubling the material on either side of the neutral axis, which in a T-section would form a rectangle and an I. As a matter of fact, neither of these two hypothetical sections is equal in strength to that of the T which they are devised to measure, nor are they equal in strength to each other. M. Nivet is not the first engineer to be misled by this

tempting fallacy, nor in all probability will he be the last.

Having taken this short cut to avoid the necessity of calculating the virtually unsymmetrical sections of steel and concrete, he then takes another to save calculating the position of the neutral axis by assuming that for all practical purposes the latter may be taken as falling in the middle of rectangular sections and slabs, and in T-sections at a distance below the bottom of the slab equal to the depth of the slab. These are, however, positions which it seldom occupies in practice, and they attribute an unduly high value to the concrete in compression, which is commonly the weakest point. The danger of this supposition is neutralised in T-sections by a further assumption that the slab forms no part of the beam. It will be seen that, as compared with ordinary theory, these assumptions taken together will tend to cancel each other out in some beams, in others to prove unduly safe, whilst in others again their effect is on the side of danger. It is, therefore, not surprising that in some of the examples given of T-beams the proportions calculated for given loads do not appear to differ materially from those demanded for ordinary theory; but there would be considerable danger if a designer, believing the basis of the tables to be correct, increasing the loading on the obvious ground that the slab had not been allowed for.

The danger of failing to estimate the weak points of the scheme is mitigated by the conscientious thoroughness and precision with which the author explains his views. His language is pithy, simple, and so well chosen that his meaning is amply clear even to a foreigner whose knowledge of French technical literature is but limited. Even though his book can scarcely be held to have achieved its primary object, one reads it with interest and recognises that it forms a contribution to the literature of the subject which is by no means without value.

PERCY J. WALDRAM.

## PAINTING CONCRETE SURFACES.

To combine protective and decorative qualities in the painting applied to concrete surfaces, it is necessary to have in mind not only those things which will lend beauty, but how they must be applied in order to promote the life of concrete, at the same time insuring maximum service of the coating. It is advisable to study the properties of the constituents of cement and concrete in order to determine how they affect the stability of the structure, and also how they affect the coating applied over them.

Concrete surfaces may be divided into three general classes. First, interior walls of plaster (sand or smooth finish) and cement; second, cement and concrete floors; third, stucco, cement, and exterior concrete surfaces. The conditions to be considered are very much the same in each of these surfaces, and the treatment given should be practically the same. It would not be practicable to prescribe a set formula to apply to all cement and concrete surfaces. While they are very similar, it is

necessary for the painter to use his judgment and experience, making such slight modifications as each particular case requires. The age of the wall, its environment, and the character of the finish, are factors which will modify the treatment necessary in order to obtain the best results.

### *The Action of Lime.*

For the reason that lime has a saponifying action on oils, and furthermore, recognising the fact that all cements and concrete construction contains alkali in varying amounts, the first matter to consider is how to treat the surfaces in order either to eliminate this material by neutralising it or in some manner to keep it from exerting its harmful influence on the vehicle portion of the paint which is to be applied. A treatment which has for its object the elimination of whatever free alkali is present on and near the surface in many instances proves injurious to the structure. The use of mineral acids, while neutralising the lime, may possibly detract from the life of concrete construction. Solutions of minerals that change the lime to insoluble salts, which do not act on oils, have been suggested from time to time, and have been used with varying success. What is known as the Macnichol zinc sulphate treatment has proved very successful for the treatment of interior walls before applying prepared flat wall-finishes, or other coatings. It is very generally recommended, and its satisfactory character is based on the reaction which changes the free lime to the sulphate form, the latter possessing no saponifying action on the paint which is subsequently applied. This treatment has given excellent results on walls which are free from permeation. On walls, however, through which moisture from some source or other forces its way, the soluble salts present throughout are dissolved and are brought to the surface, where they give rise to such undesirable conditions as staining, etc., and, upon the evaporation of the moisture, efflorescence develops.

Before applying the solution of zinc sulphate, it is desirable to go carefully over the walls, removing all dirt, grease, and loosely adhering particles of concrete, at the same time filling up any broken parts of the surface and cracks. The surface should then be allowed to stand for at least forty-eight hours, in order to allow it to dry out properly, and in order to obtain full benefit of the neutralising properties of the solution. The use of water-solutions is undesirable unless the surface has ample time to dry out. The excess zinc sulphate should be brushed off before applying the paint.

Wherever possible, the surface to be coated should be allowed to stand from three to five weeks in order to give it time to dry out. The undesirable effects obtained by the presence of alkali in the concrete are also lessened when the surface is allowed to stand for some time.

### *Painting Cement and Concrete Floors.*

Considerable attention has been given to the painting of cement and concrete floors, as there are many reasons why such coatings are highly desirable, and, in many cases, absolutely necessary. The absorption of grease and oil tends to disfigure a

\* "Calcul de Béton Armé." Avec Barèmes pour en Déterminer les Dimensions. By A. Nivet, Ingénieur, E.C.P., manufacturer of Hydraulic Lime. Price 7 fr. 50., 10 ins. by 6½ ins. 2nd edition. Paris: H. Dunod & E. Pinat, 47 and 49, Quai des Grands Augustins.





REINFORCED CONCRETE WAREHOUSE, DYCHE STREET, MANCHESTER.

floor, and some of the best authorities on concrete construction are of the opinion that a considerable number of these materials have a disintegrating action. Many mineral oils, when allowed to penetrate into concrete that is not thoroughly dry, promote disintegration. Old surfaces do not show any noticeable indication of deterioration, however.

The floor is made sanitary by painting, because it can be kept clean and free from dust and dirt. All opportunity for "powdering" is overcome by the thin film of paint which, when properly applied, has a firm hold within the mass of concrete, and besides eliminating the possibility of surface wear, makes an impervious coating which prevents the absorption of moisture. This coat will withstand the action of forces which would readily disintegrate the untreated concrete. Oils and grease are kept from penetrating into the concrete. With reference to the finish, the same colour properties and decoration can be obtained on concrete floors that are possible by the painting of wood, except that wood stains are not applicable.

#### *The Function of the Filler.*

In applying the paint, two factors must be given careful attention. While the pigment is a requisite of considerable importance, the vehicle will, in almost every instance, determine the wearing properties. Floors are subject to hard usage, and must stand severe strains. It is necessary, therefore, to use a material which will oxidize to a dry film and which will retain sufficient elasticity to withstand the strains to which it is exposed. Ordinary floor paints which prove satisfactory when used over wood give like results when used over a properly applied filler. The wear closely resembles that found on a wooden floor.

The paint coat invariably possesses better bond within the concrete, and the service in many cases is superior to that obtained from the same paint applied on wood.

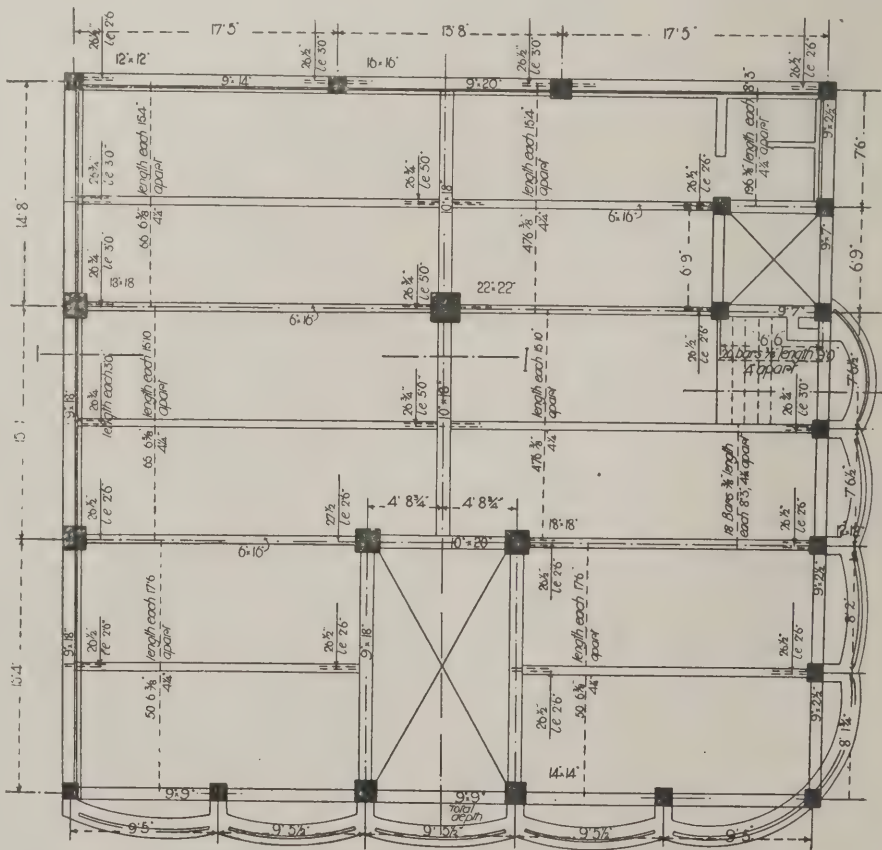
Natural wear will gradually make necessary the repainting of floors. It is not necessary to apply a filler again. One coat of paint, well brushed out, gives the best results. In preparing the surface for repainting, no strong alkali should be used for cleaning, as it will not only act upon the paint, but, if not thoroughly removed, will also affect the following coat. It is advisable to go over the surface with warm water and soap and allow sufficient time to elapse for drying.

Paints made especially for cement and concrete surfaces show improved wearing properties when applied over a filler. Considering that it is chiefly the vehicle of a paint which is acted upon by free alkali present in concrete, and with the knowledge that up to the present time all those vehicles which give good results are saponifiable, it is easily explained why paint applied over a surface which has been treated to correct for the alkali will give better results than if certain portions of a paint, no matter how scientifically constructed, must neutralise the objectionable forces at work, when as a natural consequence in so doing the bond within the structure is weakened or broken in places.

### REINFORCED CONCRETE WAREHOUSE, MANCHESTER.

The accompanying illustrations show a warehouse of a very economical nature which was recently erected in Dyche Street, Manchester. Reinforced concrete on the Coignet system is employed throughout, except for the walls, which are of brick, supported from floor to floor by reinforced concrete lintels. It was deemed advisable by the architect, Mr. Isaac Taylor, F.R.I.B.A., of Manchester, to leave the outline of the structure apparent, instead of hiding it by brickwork.

The building is composed of a ground floor, first floor, second floor, and roof.



REINFORCED CONCRETE WAREHOUSE, MANCHESTER: FOUNDATION PLAN.



The general dimensions of the building are approximately 47 ft. by 48 ft. The floors are calculated to support a super-load of 2 cwt. per sq. ft., with an ample margin of safety. The thickness of the floor slabs is only 4½ in., each floor being supported by principal and secondary beams, as shown in the accompanying drawing of the ground-floor plan, giving the arrangement of beams and posts.

The detail drawing shows the typical arrangement of the bars forming the reinforcement of the pillars, beams, and slabs. The slabs are composed of a meshwork of principal or secondary bars, bound together by means of annealed wire, and calculated to take the efforts of tension. The beams are formed also by round bars of mild steel, forming a group at the bottom of each beam in order to take the efforts in tension. The ends of each bar are bent up at an angle of 45 deg. to counteract shearing stresses, and the end of each shear member is hooked over a top bar.

The posts are composed of four or eight bars bound together by means of spiral ties of small diameter. The lintels supporting the brick walls and a portion of the floor slabs contain straight bars top and bottom, which are calculated to take the compression and the tension, these top and bottom bars being united by means of stirrups of small diameter, which are meant to resist shearing efforts.

Mr. Robert Carlyle, of Manchester, was the general contractor for the reinforced concrete, and the work was carried out by Messrs. W. Turner (Ardwick), Ltd., of Ardwick, Manchester.

### REINFORCED CONCRETE IN THEATRE CONSTRUCTION.

Outstanding requirements of a building material to be used in the erection of theatres are fireproofness and proper acoustic qualities, and these requirements, it is asserted by Mr. Valdemar J. Elmont, of Montreal, who has had extensive experience with this material, are best fulfilled by reinforced concrete. As an example of the importance laid upon the question of fireproofing of theatres and the care with which reinforced concrete is studied, it may be mentioned that the Austrian Government, in connection with the Austrian Society of Civil Engineers, has built a model theatre in Vienna, with all floors, walls, columns, roof, etc., of reinforced concrete, in order to give experts interested in theatre building an opportunity to ob-

serve fire-tests and study the best layout for such construction. The model theatre has a stage 25 ft. broad and 20 ft. long, the auditorium being 19 ft. by 23 ft. The many fire tests that have been made in this theatre have proved conclusively how well adapted reinforced concrete is for rendering theatres fireproof.

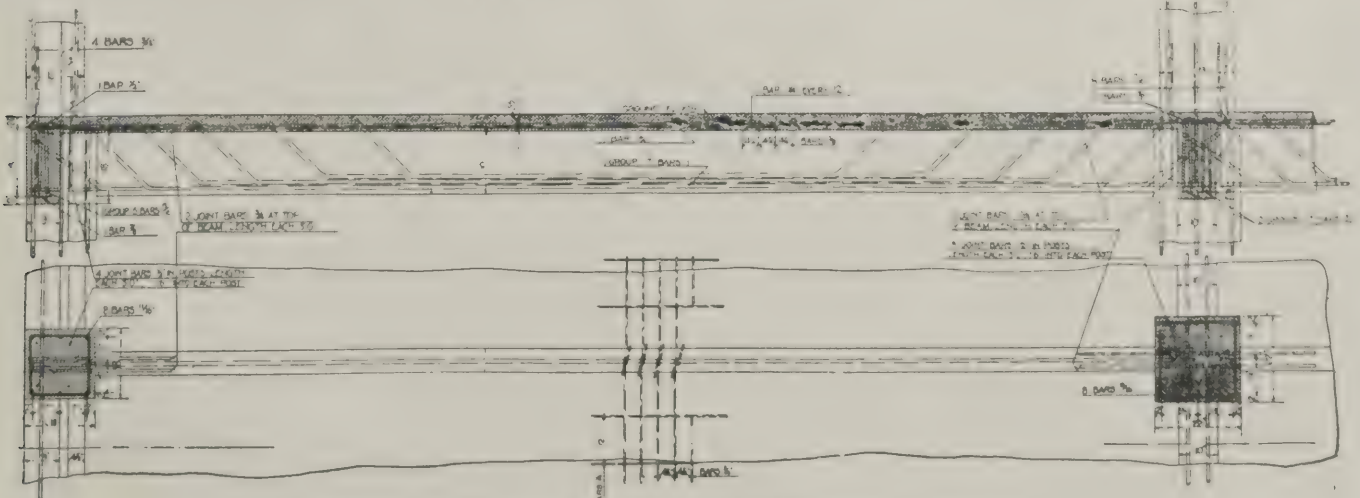
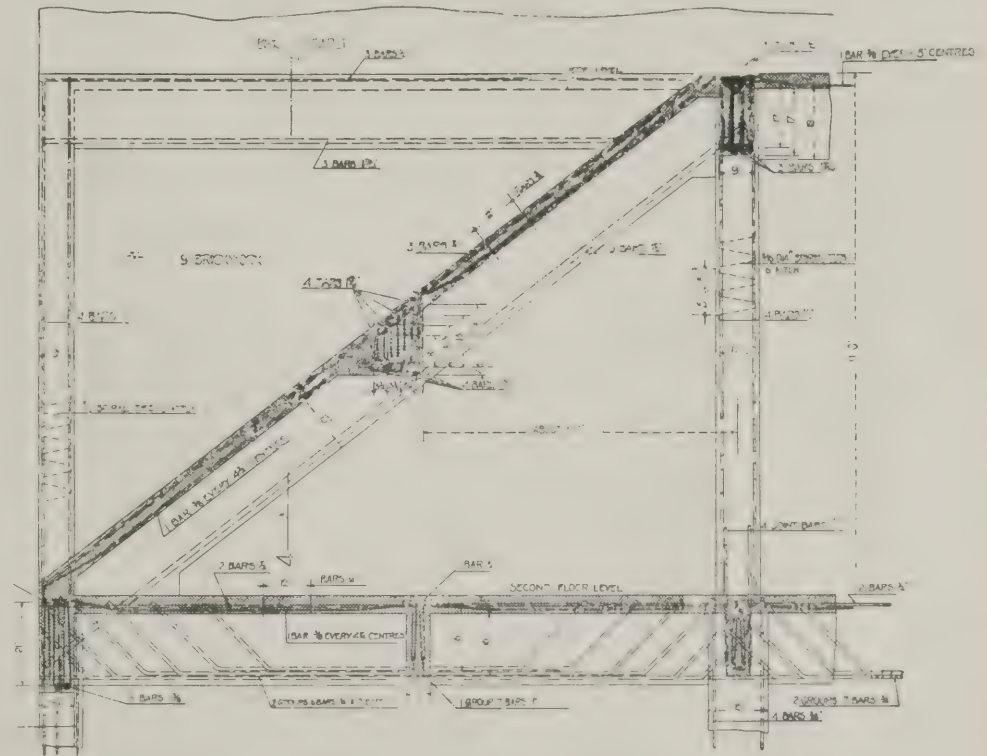
#### Mixed Systems.

The number of theatres built either wholly or with a skeleton of reinforced concrete has enormously increased in recent years. Between these two extremes are to be found many examples of mixed systems, where one part of the building is entirely in reinforced concrete and the other in brick or cut stone.

The town theatre in Basel has been built almost entirely in reinforced concrete. Thus the parquet floor, the stores underneath it, the four upper circles, the ceiling over the pit, and the roof are constructed in this material. By this the architect's requirement that the interior construction and the roof should be perfectly fireproof was fulfilled. The exterior walls are of cut stone, the interior of brick, while those around the auditorium are of reinforced concrete, forming a connected whole, with the cantilevers for the very projecting circles and the floors over the foyers and

refreshment-rooms. The parquet floor, which slopes towards the stage, supported by columns and beams, is provided with numerous openings for the conduction of hot air. In the construction of the upper circle the chief restriction was that no columns were allowed, in order to ensure a free view of the stage; for this reason all the four circles were built as cantilevers. The first circle has 16 ft. overhang, second 10 ft., third 9 ft., and fourth 16 ft. The two lower circles are fixed in the wall between the stage and the foyers, and are stiffened by radial beams. Each of the two upper galleries, together with its own corridor, is built in one monolithic mass. The steps on the circles are built of 2-in. thick concrete slabs resting on 4-in. thick concrete supports at the cantilever beams, the horizontal space between the seating slabs allowing the circulation of hot air.

The flat ceiling over the pit is suspended from the arch roof in the plane of the tie rods of the same, thereby protecting the tie rods from fire. Forming part of the decoration of the ceiling and suitably masked, there is an annular ring of three-angular cross-section, open on the lower side to the foul air rising from the building. Between the arch roof and the ceiling, fans are placed for sucking the foul air through this ring and conveying it out-



REINFORCED CONCRETE WAREHOUSE, MANCHESTER: SECTIONS.



side the building. The arch roof has a span of 110 ft. with 33 ft. rise, it is 10 in. thick at the crown and 20 in. at the springing line. The roof proper is a light wood construction supported by the reinforced concrete arch and covered with slate.

#### *An Example from Copenhagen.*

The new theatre in Copenhagen shows also a mixed use of reinforced concrete and brick. Round all the stair shafts, the cloak rooms, and the stage, are thick brick walls, while the auditorium and the corridors are surrounded by concrete columns and beams, supporting curtain walls. All the floors and stairs are of reinforced concrete. The cantilevers for the circles, which in this theatre reach a free span of 19 ft., are formed in two different ways. At the sides of the auditorium the beams forming the ceiling over the foyers are cantilevered over to form the consoles—the pivot of the cantilevers being the T-beams, which run over the heavy columns built in the auditorium walls and which also support the curtain walls. Opposite the stage and where the greatest overhang is situated, the cantilevers are fixed only in the strong reinforced concrete columns around the auditorium, so that these columns will take both compression and bending. The ceiling is carried by four Vierendeel trusses, *i.e.*, trusses without diagonals, only with verticals constructed in a special manner suitable to the properties of reinforced concrete, and one common truss (with diagonals and verticals) nearest to the stage, built also entirely in concrete. Over these five trusses the arch roof is placed. It has a 50-ft. span and is 4 in. thick at the crown and 10 in. at the springing line.

#### *Some Large Cantilevers.*

A theatre entirely in reinforced concrete has been built in Los Angeles, California. It is a two-balcony theatre, in front of and over which is an eight-storey and basement office building, all built of reinforced concrete. In general design it follows the usual column, beam, and floor standards, but in the cantilever, balconies, and roof beams over the auditorium, the extraordinary size of the members makes them worthy of record. The walls are for the larger part of concrete, covered on the outside with tile to the first storey and with brick above. Inside, the concrete faces are covered with plaster, decorated in accordance with the style of the building. The longest cantilevers of the gallery and balcony are 27 ft. and 30 ft. projection respectively, and the balcony is supported by six of these cantilevers, giving it a free archway of 30 ft. The two side cantilevers are brackets 18 ft. long, coming off of the truss columns on either side of the auditorium. The four great central cantilevers are supported on independent columns, which are located in the curtain wall between the main floor of the auditorium and the foyer. The cantilevers rest on these columns, extend back over the foyer, and are anchored in the reinforced concrete wall six storeys high at the rear of the auditorium.

That portion of the balcony between the cantilevers is constructed similar to the ordinary joist system. The risers are reinforced concrete joists, or beams, resting on the cantilevers and monolithic with them, while the slab is supported on the top of one riser and hung from the bottom of the next. This construction is very economical in reinforced concrete, for, unlike with other material, these beams are cast to conform to the curve of the

balcony seats, a feature that could not be carried out in structural steel except at a considerable increase in cost.

#### *Arrangement of the Boxes.*

On either side of the proscenium arch, which is also of reinforced concrete, are the boxes in two tiers, and no boxes are on the same level, being so arranged that the top of the rail of the farther box is on a level with the head of the occupants of the box nearer the stage. These boxes project from the wall 6 ft., and are carried by a 6-in. cantilever slab. The complicated structure around the boxes, consisting not only of the boxes and rails at different levels, but also of partition walls, several flights of stairs and the main walls of the building, were all cast at the same time—truly a monolithic structure. The roof beams over the auditorium carry a three-storey building on them. They have horizontal chords and are 71 ft. long over all, 10 ft. deep, 24 in. wide at the top, 18 in. at the bottom, and calculated to support a live and dead load of 570,000 lb.

The above examples of theatres in reinforced concrete are only among the many which have been built in the twentieth century, and doubtless its employment for this purpose will advance more and more with the succeeding years.

### CONTINUOUS BEAMS IN REINFORCED CONCRETE.

This book consists of a large number of unlettered diagrams showing variations of bending moments on continuous main beams due to the reactions of secondary beams, and varied according as to whether the floor bays carried by the latter are loaded or empty. The author has scarcely done himself justice in reducing the explanatory letterpress to a very few pages. The diagrams may be of considerable assistance in design, but the absence of particulars involves considerable labour in ascertaining their scale and meaning.

The effect of dead-weight of structure in modifying the consequences of unequal loading is often important, and it would have been preferable if the diagrams had been prepared to include the effect of an average proportion of dead weight.

The method of treating the effect of unequal loading on beams without reference to the transverse strength of columns is a convenient way of avoiding a complex problem, but the average student and the practical designer would prefer a few reasons in support of it.

The explanations given are somewhat dogmatic in tone and are frequently based upon the phrase, "In the author's opinion." Such a reason for the faith which is in him may be the only one required of an engineer when framing a report or a proof of evidence upon which he will subsequently be cross-examined; but when he writes for the information of fellow-engineers something more is necessary. In these days of carefully-elucidated text-books the reader is apt to expect not so much the author's opinion, but rather adequate data and clearly-written deductions, completely proved, upon which he is free to exercise his judgment and form a healthy and reliable opinion of his own.

PERCY J. WALDRAM.

\* "Continuous Beams in Reinforced Concrete." By Bernard Geen, A.M.I.C.E., M.S.E., M.C.I. 9 ins. by 11½ ins. Price 9/- net. London: Chapman & Hall, Limited.

### WATERPROOFING CONCRETE.

Concerning the correspondence on "The Cheap Cottage," Mr. J. H. Kerner-Greenwood writes: "Mr. Thos. Potter states that he asked the head of an asphaltting firm whether he had had to asphalt concrete roofs which had been formed some time but not asphalted, and his reply was 'Any number.' This only proves our own experience that cement is not quite waterproof, and requires a medium to make it absolutely so. We have supplied Pudlo for the workmen's dwellings at Swansea erected by the Swansea Corporation in 1908, and it has also been used for flat roofs on such important buildings as Ruskin College, Oxford University, and the Leicestershire County Asylum. Only a fortnight ago I visited Hardwick Old Hall, which the Society for the Preservation of Ancient Buildings has been restoring, and saw there two flat roofs which had been done in Pudloed cement, and which were perfectly satisfactory. More perfect roofs could not be seen. When architects and builders know that cement flat roofs can be made satisfactorily without any fear of deterioration, such roofs will become more popular, and the building of cement flat roofs by the local builder will be a great convenience."

### NEW COMPANIES.

*Wrexham Brick and Tile Co., Ltd.*  
(129,340).

This company was registered on June 2nd, with a capital of £2,000 in £1 shares, to take over the business of a manufacturer of and dealer in bricks, tiles, clay, terra-cotta, and other earthenware articles carried on by W. Whittingham at King's Mills, Wrexham, as the Wrexham Brick and Tile Co. The subscribers are: A. Hilton, 22, Grant Avenue, Wavertree, Liverpool, C.A., and W. Relph, 2, Arlington Avenue, Sefton Park, Liverpool, accountant, one share each. Private company. The number of directors is not to be less than two nor more than five; the first are T. B. Taylor and W. Whittingham. Registered by T. T. Hull and Son, 22, Chancery Lane, W.C.

*Pouzzo Cement Co. Ltd.* (129,300).

This company was registered on May 31st, with a capital of £10,000 in £1 shares, to take on lease or otherwise acquire the Pouzollannique and magnesian deposits, and the marl, cement, sand, coprolites, clay, and other minerals in certain lands in the island of Santorin, Greece, and to adopt an agreement with M. Andreson. The subscribers (one share each) are: E. S. M. Perowne, 5, Guildhall Chambers, Basinghall Street, E.C., solicitor; G. F. Heard, Holmwood, Devonshire Road, Merton, managing clerk; J. Cooper, Rushacre, Goodwyns Vale, Muswell Hill, N., clerk; J. M. Troughton, 11, Mecklenburgh Square, W., clerk; J. Schade, 9, FitzGeorge Avenue, W., stockbroker; E. F. Doutre, 56, Moorgate Street, E.C., manager; A. L. Smith, 56, Moorgate Street, E.C., secretary. Minimum cash subscription seven shares. The number of directors is not to be less than three nor more than seven; the first are E. S. M. Perowne, M. Andreson, and E. Brouse. Qualification (except first directors) £100. Remuneration £400 per annum and a percentage of the profits divisible. Registered by E. S. M. Perowne, 5, Guildhall Chambers, E.C.



# THE ARCHITECTS' & BUILDERS' JOURNAL.

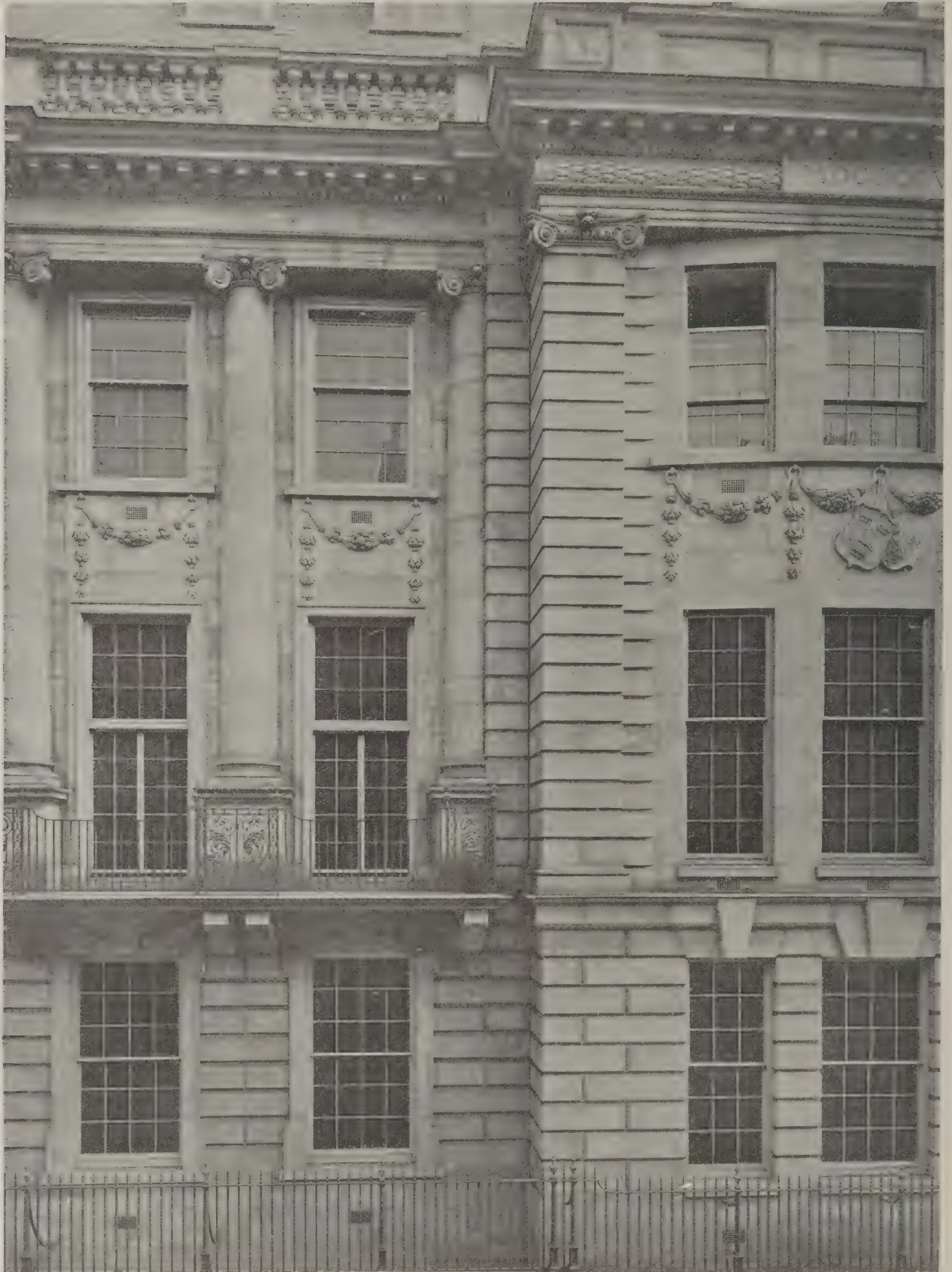
Wednesday, June 25, 1913.

Volume XXXVII. No. 963.

No. 33.



*(From Piranesi.)*



THE UNITED UNIVERSITY CLUB, LONDON: DETAIL OF FAÇADE TO SUFFOLK STREET.

REGINALD BLOMFIELD, A.R.A., P.R.I.B.A., ARCHITECT.

(See page 665.)



# THE ARCHITECTS' & BUILDERS' JOURNAL.

JUNE 25, 1913.

CAXTON HOUSE, WESTMINSTER.

VOLUME 37. No. 963.

## The Institute Royal Gold Medal.

IN 1848 Queen Victoria founded a Royal Gold Medal "to be conferred annually on some distinguished architect, man of science or letters, who had designed or executed a building of high merit or had produced a work tending to promote or facilitate the knowledge of architecture, or the various branches of science connected therewith." Since that day the Institute has been faced annually with the problem of recommending a worthy recipient of this royal favour, and the roll of medallists shows that it has set itself to the task in no narrow parochial or sectarian spirit. Of a list of sixty-six names about one-third are those of eminent foreigners, and among English architects most schools of thought are represented. Indeed, it is remarkable how for many years the names of Gothicists and Classicists appear in consecutive years—Gilbert Scott and Smirke, Edmund Sharp and Duc, Waterhouse and Barry, Butterfield and Penrose, Ewan Christian and Charles Garnier, Arthur Blomfield and Cesar Daly. This in itself is a sign of liberality of thought; and it was liberality of thought rather than the modern disease—catholicity of taste—which in the last century allowed the champions of either camp to vote for each other. Another striking thing in the list is how well founded in the majority of cases contemporary judgment appears to have been. If a vote were taken to-day on the whole list, and the total influence of each of the names fairly considered, there would not be many among the English architects of last century whom the average man would wish to displace. No doubt if Sir Gilbert Scott and Alfred Waterhouse were practising to-day and persisted in committing the same buildings over again, we might not wish to vote for them, but the probability amounting to certainty is that their buildings would be totally different. Such men represented their epoch, and it is too much to expect the contemporary judgment of a representative body to see further ahead than that.

The list opens with the greatest name in English architecture since Wren—Charles Robert Cockerell. This is followed immediately by Canina, who, like Cockerell, used his immense store of archæological knowledge as so much material upon which to whet his imagination as an artist. Sir Charles Barry, the master of modern planning, follows, and next to him in consecutive years are Donaldson, Klenze, Smirke, Hardwick, and Hittorff—all names held in high esteem by those who care most for monumental qualities in New Classic architecture. It is indeed a wonderful list for contemporary judgment to have produced, and is in itself good evidence of the high quality of the councils of those days. During the rest of the fifties and through the sixties and seventies no names of the first rank emerge, till we come in 1876 to Joseph Louis Duc, the author of the great façade to the Palais de Justice in Paris. Willis, Viollet-le-Duc, and Fergusson belong in their main work to the other group—men of letters or science who have facilitated the knowledge of architecture. Probably in the remainder of the list the most distinguished names are those of Charles Garnier and Charles Follen McKim, each of whom did work

which permanently widened the scope of architectural expression not only in their own countries but throughout the world.

A list, however, of sixty names is sure to include some curious selections. Prominent among such are Lord Leighton and Alma-Tadema. If architects wished to honour the sister art and at the same time to comply with the conditions of the gift, it is difficult to see why such painters of "still death" as these two eminent Academicians should have been chosen. The meretricious architecture of their pictures was of no real assistance to architects; indeed, by imbuing the public with a false notion of the relation to modern work of classical motifs it was a distinct hindrance. A painter like Puvis de Chavannes, on the other hand, who showed how surfaces could be decorated and remain surfaces, how indeed modern architecture and modern painting could at last be decently married, would have been a much more worthy selection. Strange omissions from a list like this, and the late J. F. Bentley's name, recall the fact that Pascal is still alive and has not yet received the medal—Pascal, the spiritual father of nearly all modern French architects and numberless Americans too.

For us to-day, however, the list begins and ends with the name of a great scholar, who is also an artist and a man of letters. The last name to be added is that of Mr. Reginald Blomfield. There is no one in the profession to-day who by his personality, his boundless energy, his books, and his buildings, sums up so well the objects for which the medal was founded. That he happens to be President of the Institute at the same time makes the occasion doubly interesting. Through his honour the whole profession is honoured. And it is honour based on very solid accomplishment. The revolution which is slowly but surely taking place in architectural education has had not only his sympathy, but his active support. As the first secretary to the Board of Architectural Education he produced the first practical scheme for unifying and systematising architectural education throughout the country. It is impossible to estimate the ultimate value of work like this. The mere fact that it is quietly conceived and put into gradual operation through the office of a central authority blinds the architectural public to its real significance. If one thinks for a moment of the immense influence on the art of all succeeding generations of the regulations Colbert drew up calling into existence the Ecole des Beaux-Arts and the Academy, one sees how deep an impression an educational policy may make. When to this work is added the educational impact of Mr. Blomfield's histories, which are no mere compilations of data, but critical works written with the spiritual insight of the artist, we see how great his influence must be on his own and on the rising generation.

Mr. Blomfield's buildings speak for themselves. They are the true reflex of his personality—strong, masculine, and unaffected. The Institute did very eminently the right thing in awarding the medal to its President.

C. H. R.



**Water Board Charges.**

**A** GAINST the anomalous and ludicrous methods by which builders are made to pay tribute to Cæsar we have frequently protested. Attention is again called to the system of basing official fees on the supposed value of the building upon which they are exacted. This quaint custom is not confined to rate collectors and district surveyors. Its humorous possibilities seem also to have occurred to the Metropolitan Water Board, who, however, have met with but indifferent success in developing the idea. Following precedent, they have endeavoured to duplicate fees because the law seemed to sanction this extortion. From a firm of builders who had made an addition to Hounslow Barracks, they demanded, for the supply of water used in the work, payment at the rate of 7s. per £100 of the probable cost of the building, although it was represented to them that the water used had been already charged to the War Office, who paid by the meter. That a builder should have water measured to him by meter is, however, contrary to a general resolution passed by the Board in 1907. The county court judge took the view that therefore the Board were justified in demanding from the builder payment for water for which the War Office must also pay, since it had come through their meter. This finding was allowed to stand when the case was carried to a Divisional Court, although one of the two judges—Mr. Justice Channell—dissented from it; but in the Court of Appeal last week the judgment was reversed. It should be noted that while the Board were getting payment for their water, the builders were presumably not escaping scot-free, since it was one of the terms of their contract that the water should be supplied by the War Office free of charge; and, if business is business, this would imply a corresponding reduction in the amount of the contract, so that, in effect, the builders were asked to pay twice over—a proposition so baldly absurd as to excite astonishment at its temporary success in the courts. The builders are certainly to be congratulated on their public spirit in carrying the case to the Court of Appeal, as well as on their successful assertion of a principle that nevertheless ought not to have needed costly litigation for its establishment.

**Regilding the Cross of St. Paul's.**

**S**T. PAUL'S, like most other great buildings centuries old, is always under repair of some sort. Many of the tasks involved in its preservation are of much general as well as technical interest, but among the minor repairs nothing could touch the popular imagination more than the work, now about to be undertaken, of regilding the cross that stands higher than anything else above London. This will be a costly and hazardous undertaking. The scaffolding, we are informed, will not be more than an affair of ladders, but the actual regilding will be very expensive, as the best English "double gold"—twice the thickness of ordinary leaf—is to be used. The original ball and cross which Wren erected was taken down in 1821, when the present one—designed we believe by Cockerell, then Surveyor to the Dean and Chapter—was set up. Mr. Macartney has told a "Times" representative how much trouble was then experienced owing to the boisterous weather, scarcely a day having passed without some part of the scaffolding being deranged. On one occasion a great part of the circular framework of heavy planks, erected above the Golden Gallery for the prevention of accidents, was carried over the housetops, to a considerable distance, and later an observatory which had been built above the usual site of the cross narrowly escaped the same fate. This observatory, Mr. Macartney explains, was put up by a young artist named Thomas Hornor, who was anxious to make panoramic drawings of the metropolis and the surrounding country. To this dizzy place he

climbed daily, and eventually made a complete panoramic view of London and its environs on 280 sheets of drawing paper! Truly an artist with nerve and perseverance.

**The L.C.C. and Reinforced Concrete Construction.**

**A**T last the London County Council Building Acts Committee have presented to the Council the revised draft of the new regulations with respect to reinforced concrete construction. In due course these regulations will be submitted for the approval of the Local Government Board, who will be asked to fix a date upon which they shall come into force. As notice of this intention to apply to the Board is to be given to the Royal Institute of British Architects, the Surveyors' Institution, the Institution of Civil Engineers, and the Concrete Institute, it is to be presumed that these bodies—or, indeed, anyone who is sufficiently interested in the subject—may even yet suggest any modifications that may seem to be of importance. As the new regulations were only presented at yesterday's meeting of the Council, we have had no time to examine them critically, but shall take an early opportunity of dealing with them. It is stated that the alterations made by the Local Government Board "render the regulations somewhat more onerous than those originally adopted by the Council," and in order to ascertain what these added restrictions are it will be necessary to compare the drafts, as the alterations are not indicated in the revision. It will be seen whether or not the Board are reasonably justified in "making the regulations more onerous," or whether they are encumbering a growing industry with unnecessary precautions.

**Unsealed Contracts.**

**T**HERE is magic in a corporation seal. Upon whether or not it is affixed to a contract depends the contractor's title to claim money for work done. It appears, too, that the contractor may be a professional man. That is an important point, because the architect or the engineer is usually quite careless as to getting his engagement ratified in due form and with full ritual. An engineer claiming £1,000 odd for services rendered to Rhyl Urban District Council in advising upon pier and harbour work was met with the defence that the corporation were not liable, the alleged contract not being under seal as required by section 174 of the Public Health Act, 1875. Mr. Justice Joyce, in giving judgment, said that this objection would have been fatal to the claim if the contract had been made clearly under the powers and for the purposes of the Act in question. He decided, however, that the corporation in this case were to be regarded as having acted as improvement commissioners under the powers of the Improvement Acts, and the engineer was therefore entitled to be paid for his work. This was decidedly "a near thing," and architects and engineers, as well as contractors of the more practical sort, will be well advised, if they want to be paid for the work that they do for corporations, to secure a properly drawn contract, signed, sealed, and delivered with full pomp and circumstance.

In the case under notice, there was no question as to whether or not the engineer had been engaged to do the work—there was documentary evidence to prove that he had been so engaged, and the objection was, *per se*, purely technical. The object-lesson is therefore the more valuable, as teaching professional men, who hardly realise that they are, in the eyes of the law, "contractors," the danger of entering into such business too light-heartedly. Too often they have entered the courts without fortifying themselves with a shred of written evidence as to their having been engaged to prepare designs or to supervise work; and Mr. Justice Joyce's remarks should convince them of the folly of such artless trustfulness.



## MR. REGINALD BLOMFIELD'S GOLD MEDAL ADDRESS.

AT the meeting of the Royal Institute of British Architects held on Monday evening last, the 1913 Gold Medal for the Promotion of Architecture was presented to Mr. Reginald Blomfield, A.R.A.

In acknowledging the honour, Mr. Blomfield delivered an address, the theme of which was "Let us now praise famous men . . . leaders of the people by their counsels . . . wise and eloquent in their instructions." He said:—

It is a far cry back to that little meeting at the Thatched House Tavern in the year 1834, when some half-dozen architects met together to consider the formation of an Institute of Architects. There were present, among others, Barry, Bellamy, Decimus Burton, Fowler, Goldicutt, Gwilt, and Hardwick; and of these we may say with the son of Sirach: "There be of them that have left a name behind them that their praises might be reported . . . and some there be which have no memorial, but these were merciful men whose righteousness hath not been forgotten." Their buildings have been less fortunate; so we may leave them there, and pass on to

*Decimus Burton,*

who, after long years of neglect and oblivion during the days of the Gothic Revival, has now come into his own again, and recovered the appreciation that he fully deserved, for he was a very accomplished architect, learned in his art and fastidious in his taste. Few, if any, better things in their way have been done in London in the last hundred years than the screen at Hyde Park Corner, and the hall and staircase of the Athenæum. Burton had caught something of the spirit of the architects of the great Imperial thermæ. His work is genuine Classic, but it is the Classic of a civilisation not remote as that which inspired the Parthenon, but in a way familiar to us and relatively scarcely less advanced than our own. Burton lived to a great age; he was not a Gold Medallist, or a member of the R.A., and, though his career must have been singularly successful, when he died at St. Leonards a few years ago he was almost forgotten by the general public.

Of the others who met at the Thatched House in 1834 Barry became Sir Charles Barry, Gwilt wrote his immense "Encyclopædia," and Hardwick was the well-known architect of Euston Station and of the Goldsmiths' Hall. The Institute was established the same year as this meeting. Lord de Grey was elected President, Donaldson and Goldicutt hon. secretaries, and among the council were Barry, Decimus Burton, Basevi, and Philip Hardwick. Sir John Soane made the new Institute a handsome donation, and in 1837 a Royal Charter was granted by William IV. All these things are stated in our Kalendar, but I make no apology for introducing them to-night to those of our audience who are not members of this Institute, or even for reminding those who are, of the long and distinguished tradition of the body to which they belong. It is a good thing now and again to hark back to the hill on which we were born.

I now come to the Royal Gold Medallists of the Institute, and here I have a curious piece of information unearthed for me by our librarian, Mr. Dircks, to whom I am indebted for some very interesting notes which he has been good enough to collect for me out of the Records of the Institute.

In the year 1846 Queen Victoria consented to grant annually a Gold Medal for promoting the purposes of the society, and the council decided that this should be offered annually for "designs calculated to promote the study of Grecian, Roman, and Italian architecture." (You will note in passing that the council, so far, was

faithful to the tradition of Classical design; the possibility of Gothic was not even thought of.) Tite, Charles Barry the elder, Angell, Donaldson, and Sydney Smirke drew up the conditions, and the subject set was "a building suitable for the purposes of the Institute, at a cost not to exceed twenty thousand pounds." The result was disappointing. The assessors reported that "not more than one of the designs possessing the slightest pretension to consideration as an architectural composition could be properly executed for less than double the sum specified." Our grandfathers did not beat about the bush, and there is a fine flavour of the polemic of the previous century in this extremely blunt announcement.

No award was made, and the council thereupon revised their arrangements and decided to award the medal on the basis that holds to this day, for distinguished services to architecture without regard to nationality. It would be impossible to deal with all the names of its recipients. They include famous architects and writers on architecture from France, Germany, Austria, Italy, Holland, and America, in addition to most of the best-known architects of this country during the past three generations. I find that it has been awarded in France to such men as Hittorff, Viollet-le-Duc, the Marquis de Vogüé, Garnier, Choisy, and Daumet; in Germany to Schliemann and Dörpfeld; in Italy to Canina and Lanciani; in Austria to Von Ferstel and Hansen; in Holland to Cuypers; and in America to Hunt and McKim; and if you pass in review the names of the Gold Medallists of this country you will get a pretty clear insight into the movement of architecture and the trend of artistic thought from the period when the medal was established down to the present day. The old guard was gradually worn down; Cockerell, Barry, Smirke, and Hardwick were succeeded by the champions of the Gothic Revival, and now their day is past and their lesson learnt, and we move again—at least, I personally hope so—in the calmer waters of the older tradition, developed and extended by its applications to modern needs. I can select only a few typical names from among the distinguished men who have been awarded the Gold Medal of the Institute.

*Donaldson.*

Early in the list appears the name of Thomas Donaldson, who received the Gold Medal in 1851, and was President in 1863 and 1864. Though not the first to receive the medal, he did so much for the Institute that we look on him to a great extent as one of its founders. Donaldson was typical of men whom we have always been fortunate in possessing as members of this society. He was not a great architect, but he was a man of much energy and business capacity, with a high sense of public duty, and he devoted his considerable powers as an organiser and administrator to the formation and development of this Institute. He laid the foundation of a tradition of public utility and high educational purpose which I am glad to say has never been forgotten or abandoned within these walls. He added largely to our splendid architectural library, both in the way of books and drawings, and the badge of office which I have the honour to wear was presented by him to the Institute. Romance appears but rarely in the careers of modern architects, and some, at any rate, of these eminent men had a more adventurous youth than is given to most of us nowadays. Donaldson, who died at the age of ninety in 1885, had gone out to the Cape of Good Hope in 1809 intending to enter a merchant's office; but he joined a force of volunteers that was proceeding to the attack of the Mauritius, in the hope of obtaining a commission in the



Army. As, however, the French retired without firing a shot, Donaldson's vision of military glory vanished. He returned to England, entered the school of the Royal Academy, travelled widely in Greece and Italy, became an architect and Professor of Architecture at University College, and devoted a long and most useful life to the public and professional aspects of architecture, and to the development of research into all that concerned the history of the art.

#### *Cockerell.*

Charles Cockerell, who received the first Gold Medal in 1848, was a few years older than Donaldson, and represents—to me, at any rate—the other type of architect, the man absolutely immersed in his art, a scholar and an artist with a passionate enthusiasm for all that bore on the history and technique of architecture. That enthusiasm never flagged to the end of a long and fortunate life. I have heard Norman Shaw describe the fascination of the lectures that Cockerell gave at the R.A. when he himself was a student there. Whatever his subject, Cockerell was very soon back among the scenes of his travels and adventures. He forgot his audience in living again those brilliant enterprises of his younger days, and went on pouring out reminiscence after reminiscence till something recalled his attention to the fact that he was not in Greece or Asia Minor, but in the lecture-room of the Royal Academy. Cockerell—who, besides being a beautiful draughtsman and a sensitive artist, was a fastidious gentleman—had certainly exceptional advantages, but he used them well. He steeped himself in the architecture of Ancient Greece, and carried into his own work something of its delicate and austere reserve. That an artist of such enthusiasm should have his limitations was inevitable. A certain coldness of temperament and a certain academical perfection and propriety may sometimes arouse in more warm-blooded artists an irresistible desire to kick over the traces; but his buildings have always a distinction rare in modern architecture, a certain well-bred personal quality that reveals itself as something beyond the reach of merely conventional accomplishment.

#### *Barry.*

Sir Charles Barry received the medal in 1850, and on the death of Lord de Grey, who had been President of the R.I.B.A. from 1835 to 1859, he was offered the Presidency, but declined it, probably for reasons of health, for he died in the following year. Barry was a thoroughly well-trained architect, and it is to be noted in the case of nearly all these famous men that they devoted a good deal more time both to their apprenticeship and to subsequent study abroad than is the fashion at the present day. Five years' apprenticeship, followed by two or three years' study of ancient buildings abroad, was by no means unusual in the training of architects eighty years ago; and though fashions change and the technical detail of that generation may be out of favour with this, there can be no doubt that these men were thoroughly well trained in the technique of architectural design, the more so as they were able to concentrate on it exclusively, instead of having to devote a considerable part of their energies to the acquisition of that applied science which has become a necessary part of the equipment of the modern architect. Barry travelled extensively in France, Greece, Turkey, Syria, Palestine, and Egypt, and this Institute is fortunate in possessing the diaries of J. L. Wolfe, his travelling companion during these three years. Quite recently a very high compliment was paid to Barry in these rooms by a well-known American architect. Mr. Hastings referred to him as one of the most remarkable architects of the nineteenth century, for his powers of planning a big design. Most of his detail is out of fashion and rather dull, but his great ability as an architect is so generally recognised that I need not remind you of his buildings. Two points, however, are noticeable in his work: signs of

the rift in the great tradition of English Classic, warnings of the upheaval that was to supersede it. The first is his choice of model, the second his complete surrender of it on a memorable occasion. Whereas Cockerell had definitely elected for Greek models and inspiration, Barry reverted to the more florid traditions of the Italian Renaissance, even following Italian originals pretty closely in his designs for such clubs as the Travellers' and the Reform. Up till comparatively recently Barry's lead was followed in most of our public buildings. Now, the pendulum has swung back to Greek motives seen through French spectacles. My personal impression is that both Cockerell and Barry were a little off the line, and that those who have blindly followed either the one or the other of these distinguished men may perpetuate a fundamental mistake, that of a too direct revivalism and reproduction, which must be sterile in its results however ably it is done. Had either of these men picked up the simple tradition of English Classic at the end of the eighteenth century, and used it frankly to meet the conditions of the day, we should have been spared years of wasted effort; but owing to causes far too intricate to be touched on now, the Lord of Misrule had flung his cap into the arena of architecture, and the first momentous intimation of this was the decision, forced upon Barry, to design the Houses of Parliament in the Gothic manner. There is a suggestive sentence in the Report of the R.I.B.A. Council for 1839. Referring to the Commission appointed to investigate the stones to be used in building the Houses of Parliament, it says: "The investigation may lead perhaps to the adoption of a stone more brilliant in hue than those at present in general use, so as to shed somewhat of the glow of an Attic or a Roman tint upon the architectural features of the public edifices of London"—a pious aspiration scarcely realised in the Houses of Parliament designed by Barry with details by A. W. Pugin. There is no need to revive the worn-out controversy as to who did it. Probably it was a genuine case of co-operation, Barry giving the scheme and general arrangement, and Pugin the detail—detail, by the way, as good as anything of its kind that has ever been done in modern Gothic.

#### *Pugin and Smirke.*

Pugin never had our Gold Medal; in the light of what followed he surely deserved it, for it was the zeal and enthusiasm of this apostle of modern mediævalism that brought out the fighting qualities of the younger generation, and won the day for Neo-Gothic. When one considers that there were solid men such as the Smirkes, the elder Hardwick, and Tite, who practised their weighty Classic with unvarying success, it was a remarkable thing to have done. Later on, Tite, who became a Member of Parliament for Bath, made a violent attack on Scott's Gothic design for the new Government buildings, and, faithful to his convictions, founded the Tite Prize of the R.I.B.A. for the best design of a given subject, according to the methods of Palladio, Vignola, Wren, and Chambers—a counterblast to the Pugin Studentship, established some ten years earlier, for the promotion of the study of the mediæval architecture of Great Britain and Ireland.

Hardwick, it is true, designed the Lincoln's Inn Library, but I have always understood that the late John Pearson was a young man in his office at the time; and Hardwick's real quality as a designer is best shown in the Propylæa and the impressive Hall of Euston Station, and in the Goldsmiths' Hall.

Sir Robert Smirke takes us back into the eighteenth century, for he was born in 1781. He was made an R.A. in 1811, and received the Gold Medal in 1853. One of the best of his buildings, and one of the best examples of the masculine Classic of his time, the General Post Office, has disappeared within the last year, not without a gallant effort to save it on the part of this Institute. Sydney Smirke, his younger brother,



who designed the Reading Room in the British Museum, was awarded the Gold Medal in 1860, and from 1861 to 1868 was Professor of Architecture at the Royal Academy, a post which has now been filled by five of our Gold Medallists. The Smirkes were, I take it, the last representatives of a tradition of Classic derived from Sir William Chambers, filtered through the publications of the Dilettante Society, and later of Hittorff and Zanth. Robert Adam's manner, graceful and accomplished as it was, was to some extent an original invention of his own, as, indeed, he believed it to be himself. Cockerell's manner was not less personal than that of Adam. The final version of Chambers's ideas of civil architecture, somewhat debased and a good deal vulgarised, appeared in the work of Tite and Robert and Sydney Smirke.

In this rapid survey I have now come to the point at which we reach men with whom some of us, at any rate, were personally acquainted. We have passed the disastrous days of the great Exhibition. Digby Wyatt, a man of wide knowledge but no definite bent in design, received the Gold Medal in 1866; but I take it, it must have been a little in the nature of a consolation prize, for the eclecticism and compromise of his generation were things of the past, architecture was deep in the whirlpool of the Gothic Revival, and the cry was raised, that is being raised again to-day, that the architect and his T-square is the *fons et origo malorum*, and that salvation is only to be found in the untrammelled genius of the working man. But the architects were energetic and astute, and they rode the storm with most remarkable skill.

#### Scott.

George Gilbert Scott, who received the Gold Medal in 1859, was President of this Institute from 1873-76, and was, I take it, quite one of the ablest men of his time. How many hundreds of churches he dealt with has never been known, possibly Scott never knew himself. There is a story that I had from a well-known pupil of his, that Scott once found himself at a remote station in Yorkshire, and was compelled to wire to his head clerk: "Why am I here?" Probably no other architect has ever left his mark on the historical buildings of his country to such an extent as the late Sir Gilbert Scott. In his "Recollections," written in 1873, he stated: "I had been one of the leading actors in the greatest architectural movement which has occurred since the Classic Renaissance." The value of the movement is open to question, but there can be no doubt of the fact that Scott was for a time its most redoubtable protagonist; and the "Dictionary of National Biography" informs us that "his excessive energy in restoration and renovation led to the formation, in the last years of his life, of the Society for the Protection of Ancient Buildings." I fear our generation is not particularly grateful to the zeal and enthusiasm, amateur or professional, of the 'sixties and 'seventies. From the point of view of professional practice those days must have been a glorious time for architects. There were not too many architects about, the landed interest was extremely prosperous and ready to support its views on art and religion by putting its hand deep in its pocket. Everywhere there was a fine glow of sentiment and romance, unimpeded by a too exact knowledge of the facts of architecture or practical understanding of its functions. A heavy reckoning has had to be paid for those happy days of romance. It is not only that our historical buildings have suffered. That has happened elsewhere, as in France, to an even more disastrous extent. The real mischief has been the confusion that has arisen between architecture and craftsmanship—a confusion that eighty years ago would have been inconceivable—and the result of this ill-balanced zeal for craftsmanship was that the purpose of architecture was all but forgotten in England, and it is only within the last few years that there has appeared unmistakable

evidence of a return to a saner tradition. It is useless to write history backwards, but one cannot help speculating what men of such great ability as George Gilbert Scott, Street, Pearson, or Bodley might have done for modern architecture if they had been trained in Classic design instead of in the details of Gothic.

#### Street.

Yet as the movement approached its end the conviction of its leaders became almost fanatical. In 1855 Street had written: "I have no reason whatever for doubting that if we wish for a purer school of art we must either entirely forget the works of the Italian Renaissance architects, or remember them only to take warning by their faults and failures." Some twenty years later Street could hardly forgive Bodley for straying beyond the orthodox boundaries of Gothic into the amiable French Renaissance of the London School Board Offices; and he himself nailed his colours to the mast in the last great effort of his life, the new Law Courts, a really monumental work, however much one may criticise it in detail. Street was not only a very able architect. Norman Shaw used to say that Street was a man who would have made his mark in any calling that he had put his hand to, and, though without academical training, he wrote most excellent English. He was also a man of strong convictions, and a very dominant individuality. My impression of him remains as I saw him in 1880-81. I was working against time in the schools of the Royal Academy, being indeed anxious to get away for a cricket match in the country; our old friend Phenè Spiers brought in a burly, bearded man, who tramped across the room and asked me what I was doing. In my haste I answered shortly, but was met by a good-humoured smile, and the visitor retired. I learnt afterwards that this was Mr. Street, and the impression that I formed of him as a strenuous and most capable personality, strong in his views, and indifferent to convention, was I believe the right one. I just recollect, too, that memorable election, in the last year of his life, when the forces of Art and those of business were set in battle array, and Art won a brilliant victory: a victory cut short, alas! by Street's untimely death.

Since these days we have learnt from adversity the necessity of combining business aptitude and art. Since these days, too, the battle of the styles has dropped into oblivion. The point of view has shifted, or rather we have come to see that all vital art must be a personal expression—that architecture, not less than the other arts, is the expression of an idea, with this condition added, that it must also be the fulfilment of a particular and specific need. Thus these questions of archæology fall away of themselves. We use in architecture a language based on the past, just as in common parlance we use the language which has resulted from long generations of use; but we do not use language for the sake of using it, we use it to express a definite idea, we have no more use for the mere stylist than we have for the mere rhetorician. The days of the revivalist are, I hope, finally numbered.

But I have wandered from my point. I set out to praise the mighty men before us, and on that note I should like to conclude my address. We live so fast nowadays that we have little time to look behind us; yet it is well to pause now and then to pick up our place in the line of long descent, and to remember the tradition of the past. This Institute has been in existence for nearly eighty years. It is second in point of age only to the Royal Academy and the Royal Society of Painters in Water Colours. I have mentioned to-night a few only of those who in past years have played a great part within the walls of this Institute. Others, scarcely less distinguished, might well be mentioned, and I have said nothing of our contemporaries. Yet I have hoped to suggest to you something of the great tradition of this Institute, and to recall to your memory the part that it has played in



the development of modern architecture. I do not doubt that that tradition will be worthily maintained by this and succeeding generations. We ourselves are in the position of trustees for the younger generation, and we are bound to take a far-reaching view of the duties of our trust. Much of the work of the Institute must necessarily be concerned with details of administration, and members have always given their services for the purpose in the most ungrudging spirit. But a wide outlook in the arts is in accordance with our best tradition, nor do I think its members are likely to forget the high purpose for which this Institute exists, for the advancement of architecture. "usui civium, decori urbium."

## SUBURBAN HOUSE COMPETITION.

IN our issue for June 11th we published the conditions of our new competition for elevations of a small suburban house based on the plans placed first in our other competition. The prizes offered are £5 5s., £3 3s., and £2 2s., and the drawings required are—Front elevation of a pair of houses, and back and side elevations of the right-hand house. Drawings are to be sent in by July 11th, and each is to have stuck on the back of it the coupon which will be found on page xxii. of this issue. A similar coupon will be given in all our issues up to and including the issue for July 9th, and any one of these can be used. Competitors may send in as many designs as they wish, provided that each has a coupon on the back of it.

The drawings are to be to the scale of  $\frac{1}{4}$  in. to the foot, and may be in plain black-and-white or washed over and shaded in monochrome. They must not, however, be coloured. They should be sent in a roll or packed flat, and will be returned to competitors provided that a stamped and addressed tie-on label is sent. Each drawing should bear the competitor's name and



Photos: Architects' and Builders' Journal.

DOORWAY, PENTON PLACE.



KING SQUARE, PENTONVILLE.

address in the right-hand bottom corner. The style and material in which the elevations are to be carried out is left to the discretion of competitors, but the cost is not to exceed £900 the pair, and the plans shown on p. 609 are to be adhered to.

These brief particulars must not be taken as superseding the conditions in our issue of June 11th, to which reference should be made.

## THE BRICKWORK OF PENTONVILLE.

[Specially Contributed.]

THE increasing migration of Londoners to the distant suburbs has left many old-world districts to a sad fate. Scarcely a century ago such places formed the outermost ring; to-day they are of London yet not of it.

The cement-faced brickwork of the famous Penitentiary, built by Sir Charles Barry, does not here concern us, although that classic structure is perhaps a more familiar landmark than the erstwhile hamlet on the hill whose name it bears. Neither is it possible to draw attention to the windmills which once delighted Bacon and prompted him to form the plateau in Gray's Inn Gardens from which to survey the gyrating sails. The reservoir at New River Head, the glory of Sir Hugh Myddelton, still exists, but its importance is overshadowed by the chain of pools at Chingford. The "New River," after meandering through the green meadows of Hertfordshire, is no longer to be greeted hereabouts. It shares a common fate with the turbulent waters of the Fleet; both are ignominiously piped—this is a democratic age. Even the "New Road" has changed its name, but a shred of its old character is still discernible. "Merrie Islington" yet wears the happy look it has worn for centuries. The village green speaks of the "Bailliff's Daughter," the backing of early eighteenth-century houses breathes of a time when retired citizens had no greater distance to travel in order to forsake the scene of their labours and play at country life.

That once world-renowned halting place for north-bound coaches, the Angel, is dust; a modern refreshment palace marks the hallowed spot. Where is the Peacock, that bourne of travellers? A fragment of the Queen's Head is preserved within a modern shell; it is a fireplace of Jacobean design, which, together with a square of panelling, escaped the vandal hand. Yet when the Cattle Show holds sway Islington regains something of its lost youth; High-flyers and Stamford Regents there are none, but clanging trams swinging like ships through the surging crowds of provincials.

We have yet to follow the dictum that "distant



objects please," and, before discussing the minutiae of Pentonville, must treat of the other spots which form the immediate hinterland. Seventy years ago the Eagle Tavern and Gardens in the City Road shared popularity with the old theatre of Sadler's Wells. The former was the local Earl's Court, the latter a rival of the celebrated "Grecian" Theatre—a name, by the way, not inspired by the architecture. From Goswell Street Mrs. Bardell and Party, with the unfortunate Mr. Raddle as cicerone, set forth on the disastrous journey to Hampstead. Perhaps they passed on the way Miss Evans and her swain, bent on pleasure at the Eagle. How the spinster ladies who kept the dame schools in Owens Row must have frowned from their 'vantage point at such goings on!

But here we desert Goswell Road and its satellite, Goswell Street, famed in *Picwickian* philosophy, and turn into King Square. There is a sense of elbow-room within this quadrangle of dwarf houses. Tall trees of sinuous line sway gently from the green oasis in the centre. They vie in height with the cruel spire of the church on the eastern side. It is a clean square; its aspect unchanged from the date of its erection at the close of the eighteenth century. The granite sets of the roadway give a quality to the surroundings and effectually stop rinking. The trellis-headed windows of Gothic type, which denote the sanctity of the parlour, are ranged in the style of Sheraton, like a series of glazed book-cases. These small habitations, extending in lengthy groups, once housed the most prosperous of the Clerkenwell horologists. A few provided occasional shelter for the bagmen, who patrolled the provinces in high-wheeled gigs, on their return to the metropolis at intervals. On every side it is brought home to one very forcibly that these small houses were intended for families who could just afford to keep one servant, who perhaps slept in the basement.

The range forming the north and south sides of the

square is intersected by streets of fair width, the view terminating in either case with a row of small brick houses, whose colouring suggests the cheery waistcoat of a citizen of consequence. But on closer inspection we realise that formerly the tenants were such as would keep no servant at all. In fact, they held respectability dear, and maintained appearances by letting apartments. It would be impossible to chance upon a square more plaintive, or one which savoured so fully of eighteenth-century comeliness. Sweet memories of the past haunt its precincts; one forgets the unkemptness of the grass-grown centre in the larger vision of artistic harmony, the sense of humanity which reigns supreme.

To the north-east, towering high above the trees, one views the oncoming legions of industry—giant funnels belching smoke, mean and soulless streets broken by factories of brutal shapes. No wonder the children seek the umbrageous shelter of the kindly trees, even though the inhospitable pavement forms their playing field. If we note the brassplates exhibited on many doors, we find the names of journeymen of foreign extraction, workers in metal and leather goods and other small objects which can be easily manipulated.

Northampton Square is placed conveniently, a stone's throw away, on the west side of the Goswell Road. The houses are of imposing character, the portals enriched with attenuated columns, almost Colonial in detail; the low mansard roofs have semi-circular dormer windows. The superior householders who lived here in former days kept two servants, and the builders encouraged the extra expense by providing garret accommodation. The huge Northampton Institute has taken into its maw one side of the square, besides depriving the gardens of their full measure of sunlight. The old residential character has long since departed, yielding to the requirement of poorer occupants.



*Photo: Architects' and Builders' Journal.*

KING SQUARE, PENTONVILLE, LONDON.



And now by a direct road we can betake ourselves to what is known locally as the "West End of Clerkenwell," Myddelton Square. This district belongs to the New River Company, and at the beginning of the last century formed a series of fields on the western slope of Pentonville Hill. In 1815 William Chadwell Mylne, the talented son of the Robert Mylne who built old Blackfriars Bridge, in his capacity as surveyor to the New River Company, laid out the streets and squares and built the church of St. Mark in Myddelton Square. Mylne Street commemorates the architect's fame, the other arteries being named after places and persons connected with the history of London's great conduit. With pride the residents in Myddelton Square endeavour to maintain past traditions; carriage people, it is true, are conspicuous by their absence, but servants are in evidence, and the fresh-sanded roads betoken an air of superior distinction. Glimpses of well-wooded gardens present themselves, and empty mews explain the passing of the equine. In detail, the features of the houses, such as the doors and railings, portray the hand of an architect who was primarily a disciplined engineer.

The amenities of the adjoining Claremont Square were disturbed during the 'sixties when an additional reservoir was formed to supply the needs of the district. From Prospect House Canaletto drew London in a series of uplifted spires. To-day this square suggests the breeziness of a seaside resort. There is something reminiscent of the maritime terraces of Margate or Ramsgate; fanlights of curvilinear design, doorways formed of shaped reveals that try to be Dorian columns, but give up the attempt after a quarter-turn; side streets whose architecture gradually forsakes the good periods and approaches mundane mediocrity. The northern side of Claremont Square is formed by the older houses on Pentonville Hill, symphonies in brickwork whose pleasing aspect in these days of

excitement and subterranean travel is ignored. The sad pensiveness associated with the older squares has in more poignant fashion expressed itself on the crown of Pentonville. One instinctively seeks around for the tea-gardens and bowling greens formerly the attraction, or strives to pierce the mist hovering over the valley below, in search of the vanished meadows and fields which lead gently to the northern heights. The pinnacled silhouette of St. Pancras Station pierces the mid-distance, telling its tale of cathedral cities beyond, linked to the terminal by the steel webs of the north. Older than the streets and squares called into being by Mylne are the bay-windowed houses on the hill, bounded by the brickwork of the rectory house.

If an antidote were required to set against the evil effects occasioned to the optical sense by the ugliness of the huge factories fast springing up in the vicinity, the Chapel of Ease built by Thomas Hardwick, together with its gracious setting, would remedy the irritation. In some mystic fashion the whole charming character of the locality is gathered about this temple in God's Acre. Hardwick built several small chapels bordering on the New Road, and the large church of St. Mary-le-bone. In this particular instance he contrived by means of honest brickwork to embody the simplest design expressing a small suburban church.

One needs to make frequent pilgrimage to appreciate the ineffable pathos of the place; it is best viewed from the long alley-way at the east end. Grimaldi, the mirth-maker, lies buried here, and gravestones innumerable form the background amidst which scores of blithesome children play.

In these piles of tottering brickwork, which the sages of a century ago deplored, there is perhaps a paucity of invention, a poverty of inspiration, but they are intrinsically human in their proportion. The same remarks unfortunately do not apply to the suburbs of more recent date.

R.



Photo: Architects' and Builders' Journal.

ST. JAMES'S CHURCH, PENTONVILLE: EAST END.





*Supplement to THE ARCHITECTS' AND BUILDERS' JOURNAL, Wednesday, June 25th, 1913.*







LADY MARGARET HALL, OXFORD. REGINALD BLOMFIELD, A.R.A., P.R.I.B.A., ARCHITECT.





## OUR PLATES.

*United University Club, Pall Mall.*

We illustrate on the frontispiece in this issue a detail of the Suffolk Street façade of the United University Club, designed by Mr. Reginald Blomfield, A.R.A., F.R.I.B.A. The old club house followed the usual practice of devoting the centre third of the building to a grand staircase, which occupied a great deal of room and wasted more by separating the club into halves. Such a plan was out of the question in the new building, and in order to provide the requisite accommodation the hall and main staircase were placed at the north end of the building facing west down Suffolk Place. The building is a good example of that particular style of Renaissance which Mr. Blomfield has made peculiarly his own.

*Houses in Pentonville.*

The houses illustrated on page 667 are described in the article on "The Brickwork of Pentonville," beginning on page 662. An abundance of excellent early-nineteenth century work is to be found in this quarter of London, yet the quiet old squares and streets are seldom visited, and remain, even to architects, almost unknown.

*Breach House, Cholsey, Berks.*

This house, illustrated on page 669, was designed by Mr. Edward Warren, F.R.I.B.A., for his own use. It

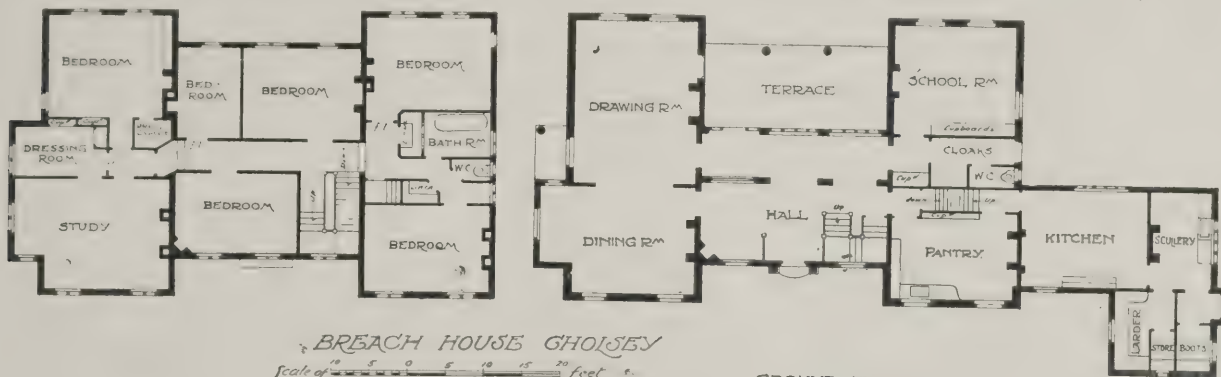
is built of local brick, overlaid with "fine-cast" or rough stucco, and colour-washed, and the roof is covered with old red tiles obtained from neighbouring farm buildings. The corners of the house face almost exactly the cardinal points of the compass. The site is upon a spur of the Berkshire Downs, and about 300 ft. above the sea, commanding fine views of the Thames Valley and the Chilterns. The builders were Messrs. Boshier and Sons, of Cholsey.

*Lady Margaret Hall, Oxford.*

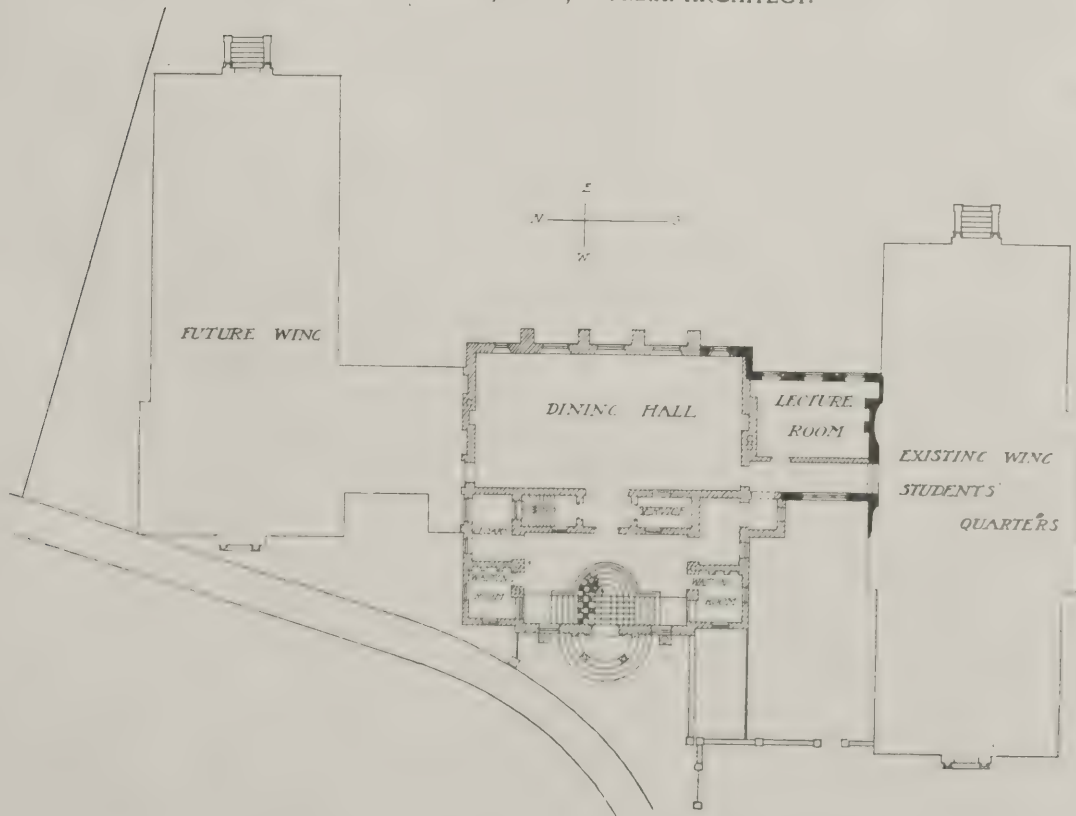
The buildings illustrated on the Centre Plate in this issue form the central block of a large scheme of additional buildings for Lady Margaret Hall, Oxford, designed by Mr. Reginald Blomfield. The wing to the right, containing students' rooms, was built in 1896. The centre block, completed in 1910, includes new kitchen and offices, new entrance hall, dining-hall, library, principal's quarters, and bedrooms. The materials employed are red brick and Clipsham stone. The general arrangement of the scheme was dictated by the sweep of the roadway. A further wing to the left or north side of the centre building will complete the scheme.

*King's College Hospital Pathological Department.*

No. xxix. of our series of "Working Drawings by Well-known Architects" (pp. 670, 671) shows the details of the Pathological Department of the new King's College Hospital at Denmark Hill, South London (Mr. William A. Pite, F.R.I.B.A., architect).



EDWARD WARREN, F.S.A., F.R.I.B.A. ARCHITECT.



LADY MARGARET HALL, OXFORD: GROUND FLOOR PLAN. REGINALD BLOMFIELD, A.R.A., ARCHITECT.

## HERE AND THERE.

DURING the past week I have been to an old castle whose familiar name recalls at once the barons of Norman days, and whose ruinous front has been the subject of many a picture—a grand old piece of brickwork rising serenely out of the grassy bed of its moat. Seeing it at a distance, one would suppose that the ancient fabric still remained a picturesque relic, ivy-grown, slowly crumbling away, a romantic example of Ruskin's dictum—"the glory of a building is not in its stones, but in its lasting witness against the transitional character of all things." On coming nearer to this old castle, however, one sees that a new hand has been ordering its condition, and it is with satisfaction that one recognises how skilfully the old work has been treated. A ruin, to me, is always an object of mixed interest. It is generally picturesque, and might be wholly admirable if one could arrest the decay that must inevitably reduce it to a shapeless mass of masonry. That being impossible of achievement, I welcome the restorer who can set to work in the right spirit; and so long as he confines himself to straightforward building work, and eschews the duplication of quaint fancies which the mediæval craftsman delighted in, a wholly commendable result is possible. The castle to which I refer above is a case in point. When the present owner acquired it the place was a mere ancient shell in a wilderness of green. All its internal features had disappeared. The keep still reared its sturdy front, but its floors had long since fallen through; of the chapel there remained (and still remains) no more than the apse with a fragment of the vault projecting like a crown overhead; the great hall has but an outer wall; while mounds and windowless walls covered with moss and lichen are all that remain of the other parts of a once important stronghold. It is with the greater astonishment, therefore, that one sees what the present owner is making of this old place. There are three contributory elements—great wealth, good taste, and a band of workmen who can do sound brickwork, execute good joinery, and produce well-wrought ironwork. For the rest, there are the scheme in the owner's brain, the practical knowledge of a master-builder of the old school, and the specialist experience of a man who knows more about ancient walling than perhaps anyone else in England. These several minds working under the general dictatorship have produced a remarkable result, and when the task is completed—some years hence—it will be quite astonishing. The old battlements have been repaired and restored, and a new interior has been given to the front part of the castle. To this end local material has been commandeered—in particular a large old tithe barn on the estate, which has furnished an abundant supply of old bricks, old tiles, and old oak beams. And these materials have been used with great skill. Seen from the inside court, the new work is well in keeping with the old, and will be completely in harmony with it after some years of exposure. And on passing through the various rooms that have been provided within these old and new walls the sense of satisfaction is not diminished. The owner is a great collector of old work, and in the course of years has brought together a multitude of magnificent things. Thus we find the rooms furnished and fitted, not with modern replicas, but with genuine antiques. In the hall, for instance, is a magnificent old staircase, of the Hatfield type, while on the high bare walls are two large tapestries; in the "Gothic Room" a superb carved gilt screen, fine old French ironwork, some mediæval chairs and other objects, all admirably disposed; in the adjoining large room some wonderful chairs of Spanish origin, two large mirrors and two console tables that originally adorned St. Cloud, a superb old French clock in the midst of a sun-burst, a bay draped

with very valuable old velvet. The walls are hung with old brocade that cost no less than £400 for the entire room. And it is the same in the several other parts of the interior. One would resent all this in Mayfair, just as I might take exception to an Elizabethan mansion in Connecticut, but here in this castle, set in the midst of old-world surroundings, the effect is delightful.

\* \* \* \*

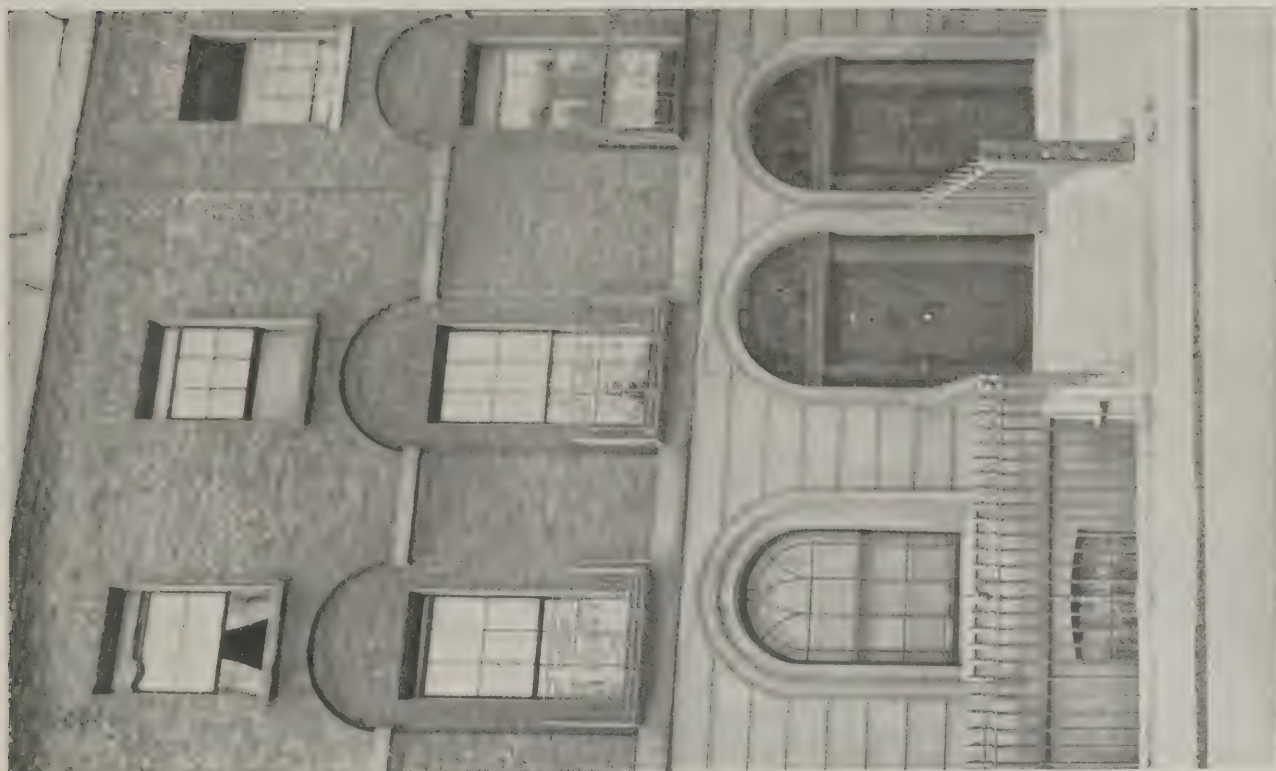
Mr. March Phillipps, who writes an architectural article about once a week for the "Morning Post," has been expressing his views on Liverpool and its architecture, using this as the opportunity for an attack on the Classical. Foster's Custom House, he tells us, "is one of those buildings described by their admirers as scholarly, but of which all that the average observer is conscious of is a dulness so absolute as entirely to atrophy thought and bring on a drowsiness against which the senses struggle in vain." Cockerell is commended for his graceful wearing of the toga, and Professor Simpson's opinion is brought forward to testify to the scale and stateliness of St. George's Hall. But all this is of the past. What of the present and of the future? According to Mr. March Phillipps the modern Classic is foredoomed to failure because its merits are not of the kind that attract public interest and recognition. "What a populace requires is a style of architecture which embodies its own national character and sentiment. There is a language of form. The English national character cannot express itself in the language of Greek and Roman forms; consequently so long as architects restrict themselves to that language what they have to say is not a national concern and attracts no general attention. The art as they practise it is an art cut off from life. The only real interest felt in it is a professional interest." Now all this is very high-sounding, but it is based on an entire misconception of actuality. If the test of excellence in architectural design is the approval of "the populace," then fine achievements are all around us, in every new music-hall that springs up like a bride-cake, and in every little villa which the suburban builder delights in. And what peculiar national character is expressive in England to-day, since architecture has become cosmopolitan? For my own part, I cannot see that we are imbued at all with the Greek spirit, being, if there must be a simile with the ancient world, much more akin as a nation to the Romans: but all this is so much pother, and it has been said over and over again. The fact is, we go back to Greece for the form only, not for the spirit, and with that definite basis we are likely to achieve far more than the nebulous career on which Mr. March Phillipps would like to embark us.

\* \* \* \*

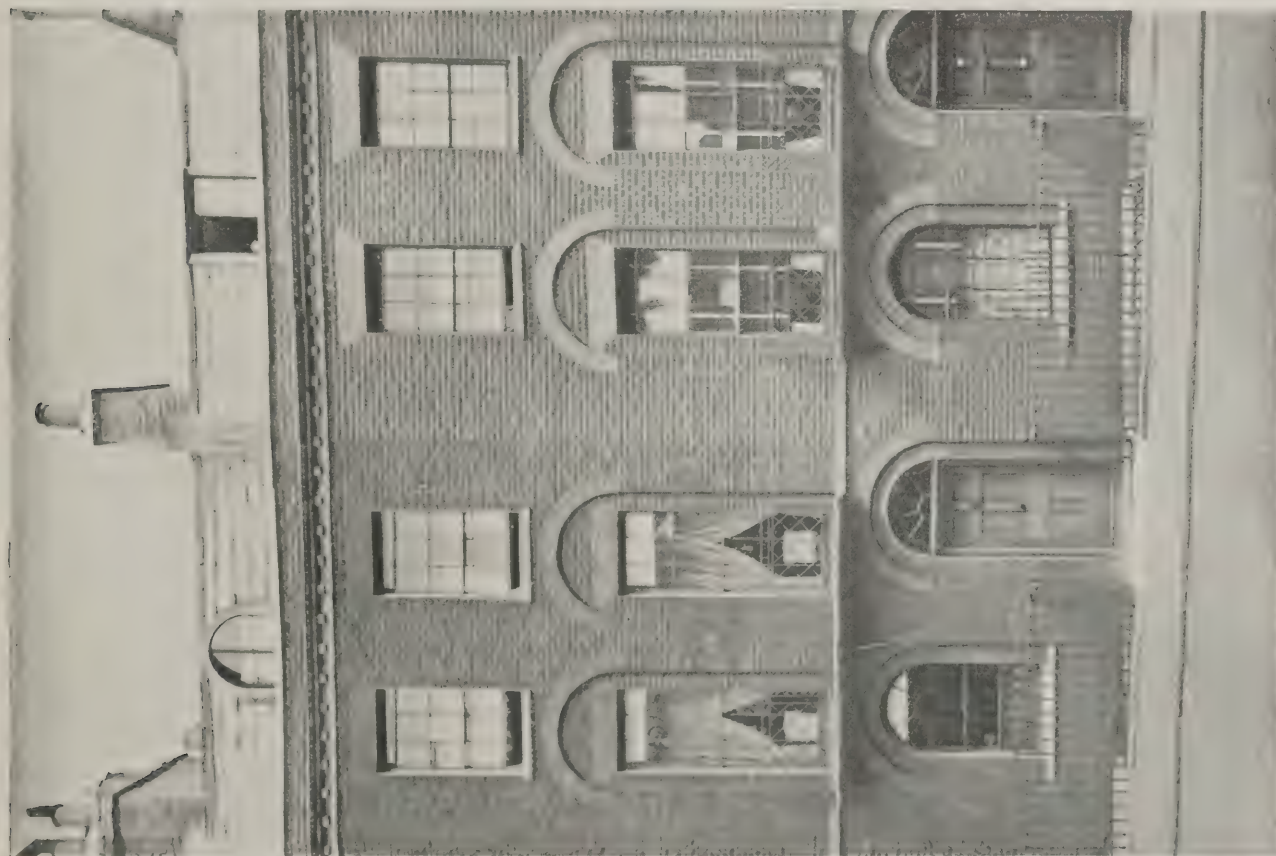
The coping-stone has fallen again, as the "Daily Chronicle" and other newspapers tell us—this time in Herrick Street, Mile End, causing injury to several women. At one time and another I have seen some big cornice blocks being lowered into position, and have been impressed by the information that they weighed so many tons, but all these of course were on very large buildings—like the Wesleyan Hall. Herrick Street, however, I take to be a nondescript place of small houses: hence the reporter's account is rather puzzling. He says: "A coping-stone measuring 14 ft. and weighing several hundredweight suddenly gave way, and, striking the iron railings, fell in pieces into the area below. . . . An eye-witness of the accident said that the coping dropped like a plank of wood into the street." The whole affair seems to create another breakfast-table problem, "When is a coping-stone a plank?"

UBIQUE.





*Photos: Architects' and Builders' Journal.*  
Houses in Myddelton Square.



Houses in Northampton Square.

THE BRICKWORK OF PENTONVILLE.

(See pag. 663.)



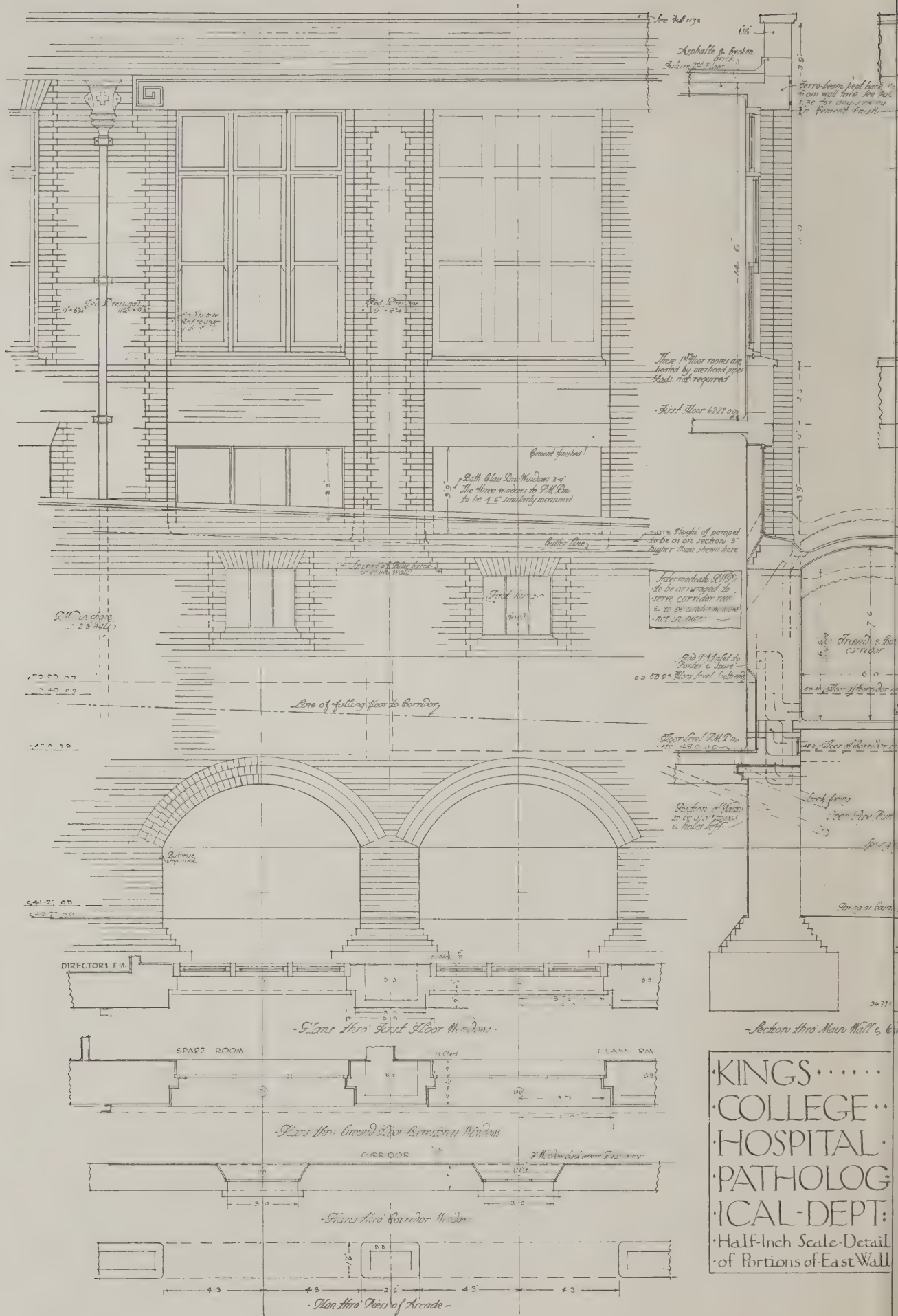




MODERN DOMESTIC ARCHITECTURE. HOUSES OF INTERMEDIATE SIZE. XIV.—"BREACH HOUSE," CHOLSEY, BERKS.

EDWARD WARREN, F.S.A., F.R.I.B.A., ARCHITECT.

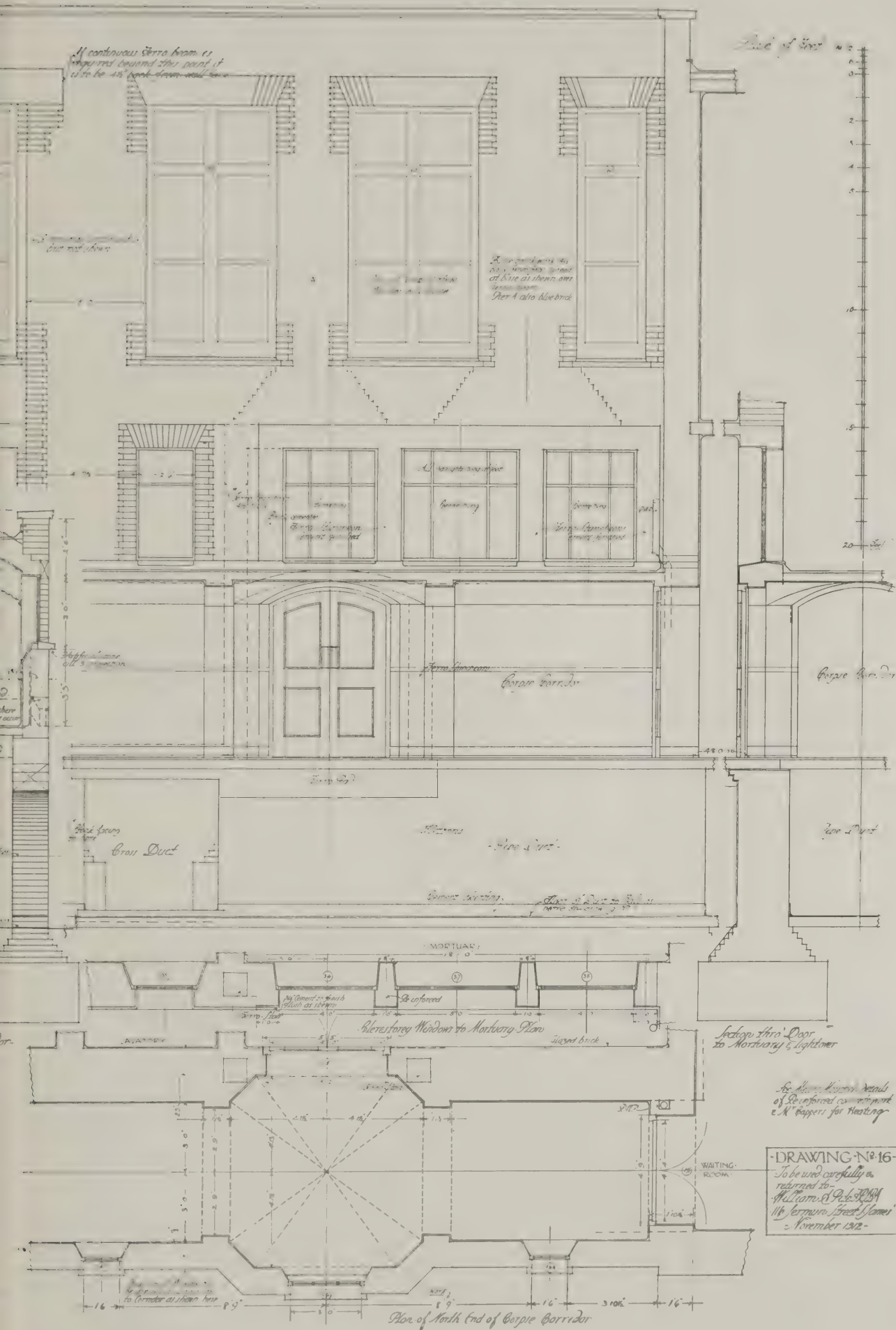
(See page 663)



WORKING DRAWINGS BY WELL-KNOWN ARCHITECT

(See





## ENQUIRIES ANSWERED.

### Safe Distributed Load on Wood Beams.

J. W. H. (South Shields) writes: "In Mr. P. J. Waldram's new book on "The Principles of Structural Mechanics," page 141, he gives the following formula for the safe distributed load on wood beams in cwt., allowing a factor of safety of 9 (see page 137)  $\frac{bd^2 \text{ in inches.}}{S \text{ in feet.}}$  Mr. H. Adams, in his book, "Examination Work in Building Construction," uses the same formula, but states that it allows a factor of safety of 7. Could you kindly explain this apparent discrepancy?"

—The handy formula  $\frac{bd^2}{S}$  is based not on a factor of safety of 9, but on a stress of 9 cwt. per square inch. The factor of safety which this represents depends upon the wood. If the ultimate stress on the latter were 63 cwt. per square inch (a very low figure for good timber), the factor of safety represented would be 7. If the ultimate stress were 81 cwt. the factor of safety would be 9. If J. W. H. will read again the two pages he quotes he will, I think, find that the value of 81 given on page 137 was deduced from three stated tests of a special wood. The handy formula refers to ordinary fir, the strength of which varies decidedly. When good straight-grained fir is tested to destruction the ultimate stress is generally in the neighbourhood of 4 tons per square inch.

P. J. WALDRAM.

### Count Rumford's Essays.

L. M. T. (Norwich) and J. S. (Belfast) ask where Count Rumford's Essays, which were casually mentioned in reference to the smoky-chimney problem (April 9th, p. 383) can be obtained.

—It is doubtful whether Count Rumford's Essays have been re-issued within recent years. Old copies, however, are not particularly scarce, and could perhaps be obtained through Mr. B. T. Batsford, 94, High Holborn, W.C., or Messrs. W. and G. Foyle, 121, Charing Cross Road, W.C. The collected Essays can be consulted in the library of the R.I.B.A., 9, Conduit Street, W., as well as the essay on chimney fireplaces which was issued separately in 1862 by E. Nest, Westgate Street, Gloucester.

### Designing in Faience and Terra-Cotta.

ARCHITECT'S ASSISTANT writes: "(1) Do the manufacturers of faience and terra-cotta decoration employ their own draughtsmen and designers, or are the designs for such work prepared by the architect? (2) Is it the practice of ecclesiastical carvers to carry out their work, such as screens, statuettes, pews, etc., from their own designs or not? (3) What training is necessary to a draughtsman who desires to undertake the above kind of work?"

—Architects' drawings reach manufacturers and carvers in many varying states of completeness. In some cases they can be worked from direct, in others they are little more than suggestions, and all the working-out remains to be done. Considerable staffs of draughtsmen are accordingly employed by the firms named. In terra-cotta and faience work drawings to "shrinkage scale" have to be prepared, usually by the manufacturer. Some firms of ecclesiastical furnishers carry out work from their own designs. A well-trained

architectural draughtsman should be fitted to undertake work of either description without special training.

G.

### Load on Girder.

J. O. (Cheltenham) writes: "Would it be sufficient to answer such a query as the following from the simplified formula given in 'Middleton's Stresses and Thrusts' —  $\frac{WL}{8} = SD$  ?—A cast-iron girder of the section as sketch is 10 ft. between the supports, and is loaded by a uniformly distributed load of 0.4 tons per ft. run. What is the maximum tensile stress produced by this load in tons per sq. inch?"

—The formula given could only produce very approximate results. With the exception of graphic methods, which are long and tedious, the only method which I am aware of for determining the stress imposed on a C.I. girder is to take out the moment of inertia. The calculation for this would be as follows: \*Distance of NA from bottom edge

$$\frac{(4 \times 25) + (2 \times 15) + (2 \times 275)}{4 + 2 + 2}$$

$$= 1.1875$$

Dividing the section up into rectangles as shown the sum of their moments of inertia would be

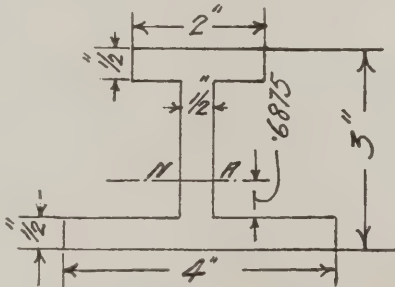
$$\frac{2 \times 5^3}{12} + \frac{5 \times 2^3}{12} + \frac{4 \times 5^3}{12}$$

$$= .0208 + .333 + .0416 = .3957$$

The sum of the area of each rectangle  $\times$  the square of the distance of its Cg from the N.A.

$$(1 \times 1.5625^2) + (1 \times 3.125^2) + (2 \times 9.375^2) = 2.44 + .0976 + 1.755 = 4.2926$$

$$I = 4.6883$$



$$\text{The S.M. of bottom edge} = \frac{4.6883}{1.1875} = 3.94$$

The tension (f) on the outer skin would be calculated as follows:—

$$BM = \frac{WL^2}{8} = MR = smf = 3.94f$$

$$\text{wintons per inch run} = \frac{4}{12} = .03$$

$$f = \frac{.03 \times 120 \times 120}{12 \times 8 \times 3.94} = 15.3 \text{ tons per square inch.}$$

P.J.W.

\* Vide "Principles of Structural Mechanics" (Batsford), page 148.

### Street Paving Problem.

H. E. I. writes: "The Corporation of a small town recently served notices on the owners of houses in a certain street, requiring them to make good the roadway that is, tar macadam, kerb, flag, and channel it), and I and the owner of a large part of the street did our own portions in accordance with the requirements of the Corporation, by whom the street has since been taken over as a public highway, all the work done by us having been accepted as satisfactory. Our property required no special crossings, but two other owners

wanted, purely for their own convenience, expensive paved entrances to their gates; and as they refused to do the work themselves, it was carried out for them by the Corporation. The crossings extend from the kerb across a grass verge to the private entrance gates. The Corporation now send accounts to myself and to the owner acting with me, indicating that we shall have to pay our share of the cost of these crossings, and explaining that they apportion them according to frontage over all the street. We refuse to pay, and should be glad to know whether the Corporation can enforce the charge."

—Had the Corporation done all the work themselves, this would have been a very difficult question to answer, though I am inclined to think that the Corporation would have been entitled to apportion the whole of the cost (including these private entranced ways) among the frontages *pro rata*. As, however, some of the owners have made good their own sections, and the Corporation has accepted the work, I am of opinion that these crossings should be paid for by the persons upon whose frontage they occur, and for whose sole benefit they appear to me to exist. I advise resistance to the charge, on the ground of its being unjust.

F. S. I.

### Oak Balcony on Lead Flat.

An anonymous correspondent writes:

"Enclosed is a sketch of an oak balcony to be erected on a lead flat over an entrance porch. A dispute has arisen in the office in which I am a draughtsman as to the proper method of construction and fixing. Would you kindly publish the answer in your Journal?"

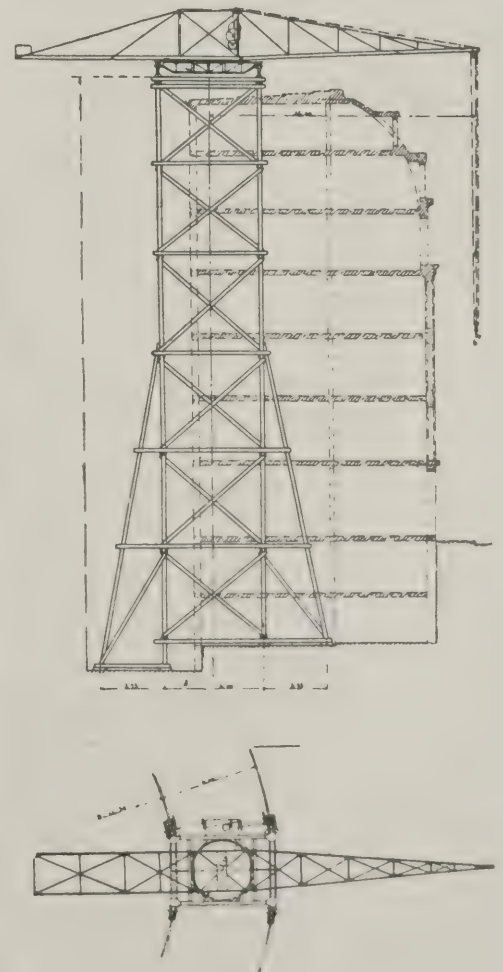
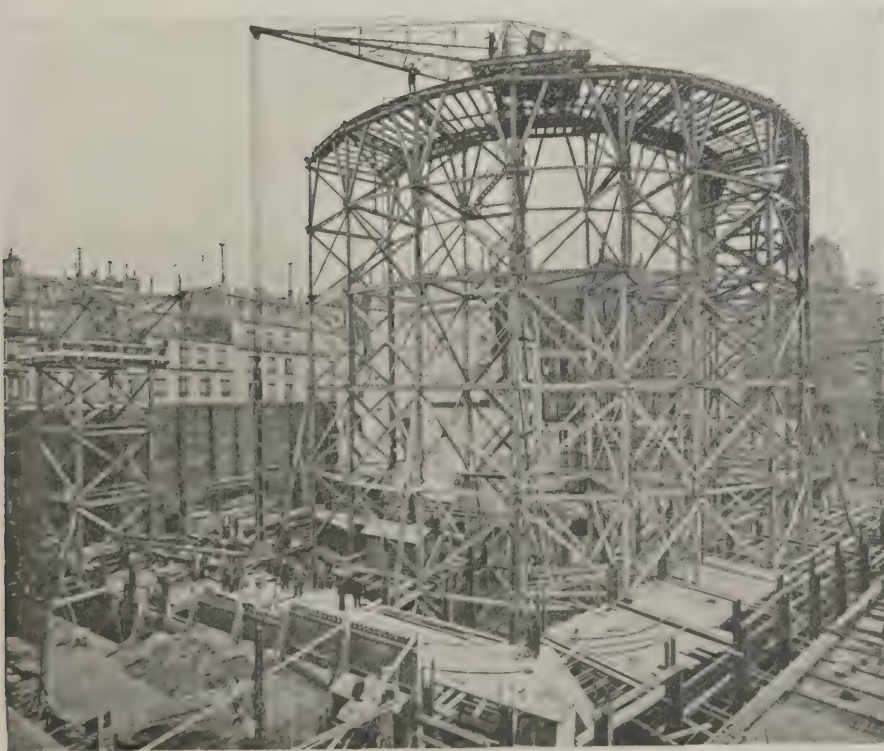
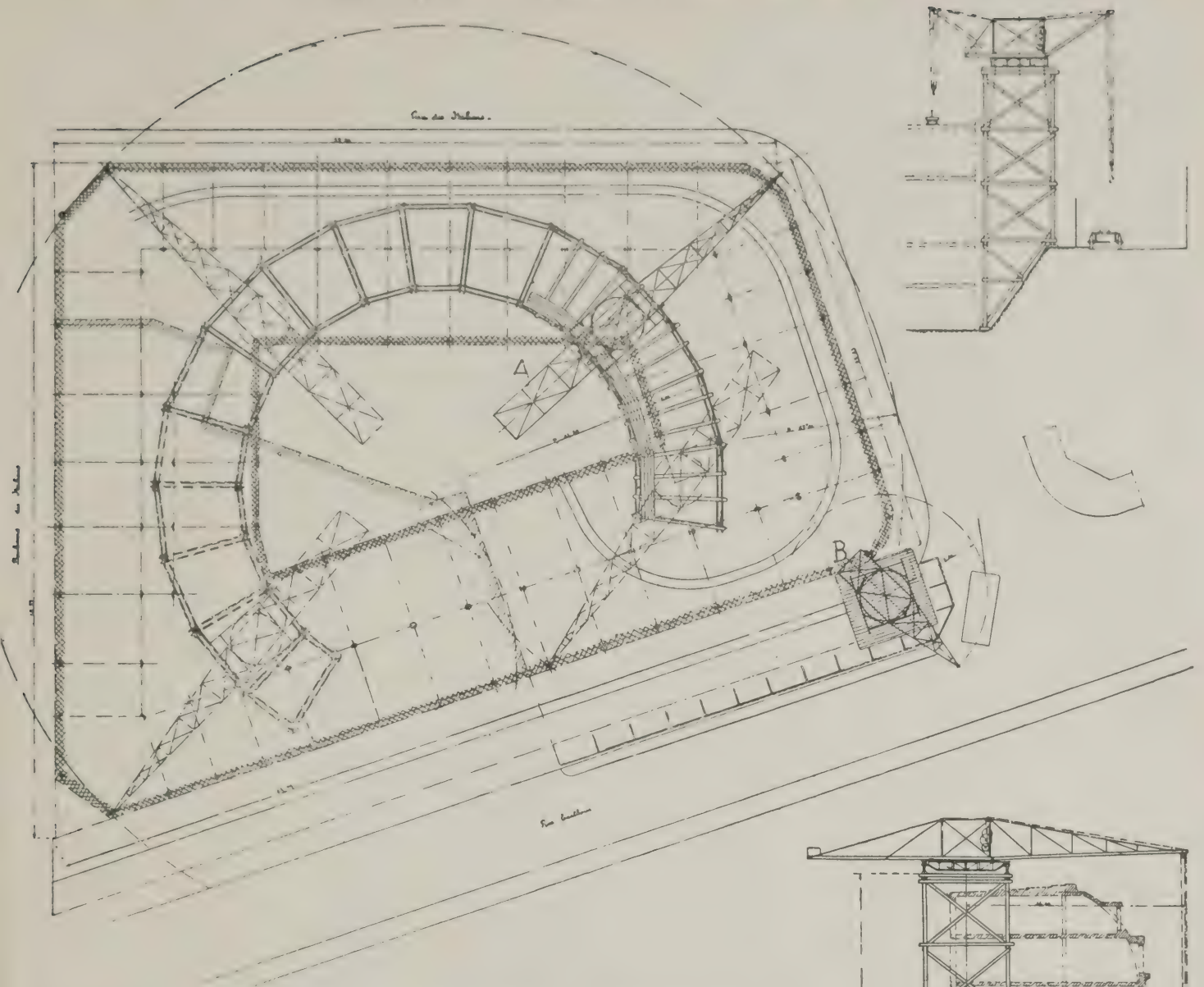
—Construction is hardly such an exact science that it can be said there is a proper way to the exclusion of all alternatives. A satisfactory method would be to carry a 4-in. by 4-in. post through the lead flat to the plate or some such solid bearing, projecting about a foot above the flat and with the lead dressed up against its sides 4 in. high. Over this the angle post could be secured as suggested—either built up or solid. If the balcony be only a small one, however, it may be sufficient to fix its returns at the wall and allow the posts merely to rest on the flat.

G.

### A REMARKABLE CRANE SCAFFOLD.

A remarkable crane scaffold that has been erected on a corner site in Paris, off the Rue des Italiens and the Rue Taitbout, is nearly circular in form, and carries on its platform, which is at a height of 34 mètres from the ground, the rails along which the crane travels. The arm of the crane is 16 mètres long, and is moved at the speed of 10 mètres a minute by a 50-ampère electric motor (110 volts). The motor for hoisting is of 30 ampères (110 volts). It will be seen that the construction of the scaffold is very simple, and that the platform is easy of access. It will be seen from the plan, in which the various positions of the crane are indicated, how completely the scaffolding commands the whole area of operations. In the plan the diamond hatching indicates the position of the walls of the new building; the plain hatching, those of the old buildings which are being demolished. The system is not entirely novel, but represents the more complete development of similar installations that have been already employed at the Gare de Lyon, at the exposition of 1900, and on many other buildings in Paris. The contractors employing it are known as the Maison Moisant Laurent-Savey.





CRANE SCAFFOLD FOR BUILDING IN COURSE OF ERECTION AT THE CORNER OF THE BOULEVARD DES ITALIENS AND RUE TAITBOUT, PARIS.

(See opposite page.)



## ON THE STABILITY OF BRICK CHIMNEYS.\*

BY HAROLD CANE.

THE author has recently had occasion to report upon the stability of several designs for brick chimneys, which have been submitted to him for that purpose, and the following paper embodies the result of certain investigations which he carried out in connection therewith, and which it appeared might be of some general interest in their bearing on the usual form of building regulations governing this subject. The paper is divided into four sections: the first deals with the methods of determining the moment of stability of brick chimney shafts; the second deals with the question of wind pressure; in the third are given some examples of existing chimneys; and the last contains a criticism of the regulations under which chimneys generally have to be built in this country, with suggested amendments.

The failure of a brick chimney is generally observed to commence by the opening of one of the bed joints on the windward side of the chimney. A crack thus begins which extends diagonally downwards along both sides of the chimney, tending to separate it into two parts. The final destruction of the chimney occurs either by the horizontal shifting of the upper portion until it loses its support from below, or by the crushing of a portion of the brickwork at the leeward edge, or by both causes combined.

Rankine states that the tenacity of mortar when fresh is too small to be relied on in practice as a means of resisting tension in the joints of a structure, so that a structure of masonry or brickwork, requiring as it does to possess stability while the mortar is fresh, ought to be designed on the supposition that the joints have no appreciable tenacity. The wisdom of this principle is illustrated in Mr. W. J. Dibdin's "Report on Mortar," wherein, referring to the adhesion tests, he states that "It was intended to obtain tests of the breaking strain at one and three months, as well as one and two years, but the strength of the mortar at these periods was too low, in consequence of insufficient setting, to enable reliable results to be obtained, the bricks in many cases coming apart in the process of fixing them in the testing machine."

It is therefore necessary, in order that the stability of a brick chimney shaft may be assured, that the material composing the structure should only be subjected to compressive stress, for under these conditions there will be no tendency for the joints to open on the windward side of the shaft.

*Wind Pressure.*

The next point for consideration is the maximum wind pressure which a chimney shaft should be designed to withstand. Rankine recommends that a wind pressure equivalent to 55 lb. per ft.<sup>2</sup> on a plane surface should be assumed in designing chimneys. Moleworth recommends 56 lb. per ft.<sup>2</sup>, which is the same as that specified in the Board of Trade Regulations for the design of railway bridges. Christie, in "Chimney Design and Theory," states that the general practice in the United States is to assume a maximum wind pressure of 50 lb. per ft.<sup>2</sup>. R. Kohfahl, dealing with German conditions, states that 41 lb. per ft.<sup>2</sup> should be considered as the maximum pressure for buildings of ordinary size and for high buildings greater pressures should be allowed for. Higher

pressures than any of these have been observed, and as high pressures as 70, 80, and even 90 lb. per ft.<sup>2</sup> have been recorded at Bidston Observatory, but the experiments carried out by Sir Benjamin Baker during the construction of the Forth Bridge, and those of Mr. Dines and Dr. Stanton, clearly demonstrate that the pressure measured by small gauges is always higher than that measured by large gauges, probably owing to the highest pressures being confined to small areas, and being much higher than the average pressure measured over a considerable area, the differences observed by Sir Benjamin Baker varying from 25 per cent. to 40 per cent. As a chimney shaft exposes a comparatively large surface to the pressure of the wind it would appear safe to assume an average intensity of pressure over the whole projected area of the shaft, considerably less than the highest pressures recorded. On the other hand, the pressure of the wind increases with the height above the ground, and it is recorded that on the top of the Eiffel Tower, 303 metres high, wind pressures have been observed five times as great as those observed at the Central Meteorological Bureau, the height of which is 21.5 metres. From graphs of two series of Stevenson's experiments, it was seen that within the limits of these experiments the wind pressure varies roughly as  $h^{\frac{1}{2}}$ ; but both the pressures and the altitudes covered by these experiments are small and further experiments with greater pressures and at higher altitudes might give somewhat different results.

Two other considerations in favour of assuming a fairly high value for the intensity of the wind pressure, both of which are practically indeterminate when designing a chimney, are the variation of the vertical axis from the true perpendicular, and the stresses caused by heat when the chimney is in service. The first causes bending stresses, which, when of the same sign as the stresses due to wind pressure, decrease the stability of the shaft; the intensity of these additional stresses cannot be determined until the shaft has been erected and plumbed, though they should not be of any considerable magnitude in a carefully built chimney. With regard to the heat stresses, Ostenfeld states that, during the storm of 1876, of a number of chimneys of identical dimensions only those were destroyed which were working at the time, which would appear to show that the heat stresses materially affect the stability of a chimney. After giving due consideration to the various points involved, it would appear to be adequate to assume a wind pressure equivalent to 50 lb. per ft.<sup>2</sup> on a plane surface for chimneys of the usual dimensions in ordinary situations, but for a chimney of great height in an exposed position it would probably be advisable to increase this figure, while for chimneys of moderate height erected in protected situations a lower value might be assumed.

The corresponding pressures for the usual forms of chimneys are:

Circular,  $50 \times 0.5 = 25$  lb. per ft.<sup>2</sup>

Octagonal,  $50 \times 0.66 = 33$  lb. per ft.<sup>2</sup>

Square (direction of wind normal to diagonal),  $50 \times 0.6 = 30$  lb. per ft.<sup>2</sup>

In one of the most celebrated chimneys in the world, that of Messrs. Tennant and Co., at St. Rollox, the joint of least resist-

ance is 225 ft. from the top, at which point the maximum wind pressure sustainable with safety is 48.2 lb. per ft.<sup>2</sup>, whilst the stress with 50 lb. pressure would be 3.4 lb. per in.<sup>2</sup> tension. From this point the stability of the chimney increases towards the base, until at the latter point the corresponding figures are 61 lb. per ft.<sup>2</sup> and 37.8 lb. per in.<sup>2</sup> compression, and at the same point the intensity of direct stress is 150.3 lb. per in.<sup>2</sup>. In a chimney shaft designed by the late Professor Rankine for a Cumberland ironworks—a model of safe and economical chimney design—all the joints would be entirely under compression with a windward pressure equal to 50 lb. per ft.<sup>2</sup>; the joint of least resistance is at the base, which is the correct position, and here the maximum wind pressure which the shaft can safely withstand is equivalent to 51 lb. per ft.<sup>2</sup>, and with 50 lb. wind pressure the stress on the windward edge would be 2.86 lb. per in.<sup>2</sup> compression.

The construction of brick chimney shafts in this country, so far as it is controlled by specific regulations, is regulated by the provisions of Section 65 of the London Building Act, 1894, or by local by-laws similar thereto, for the author found, as the result of inquiries addressed to nearly twenty of the principal industrial towns in the country, that in every case but one in which the local authority had adopted by-laws regulating the thicknesses of chimney walls, minimum diameter, etc., these provisions were similar to those in force in London, but fortunately in 60 per cent. of the towns concerning which inquiries were made, no regulations are in force regarding these points, each individual case being judged on its merits. It will be seen, therefore, that it is a matter of the first importance to determine how far the chimney shafts constructed according to these regulations conform to the conditions of stability and economy. With this object in view, the author designed a number of chimney shafts according to these regulations, and calculated the stability according to the foregoing principles. Stated briefly, Section 65 of the London Building Act, 1894, requires that the walls of chimney shafts shall not be less than one brick thick for the top 20 ft. of height, and shall be increased one half-brick for each additional 20 ft. measured downwards; that the latter shall not be less than  $2\frac{1}{2}$  in. in 10 ft. of height, and that the external diameter at the base shall not be less than one-tenth of the height for square or one-twelfth of the height for circular chimneys. The stability of the regulation chimney shaft increases as the height increases, and in the case of the 200 ft. shaft the maximum safe wind pressure is 42 lb. per ft.<sup>2</sup>, the stress on the windward edge 13.9 lb. per in.<sup>2</sup> tension, the joints of least resistance being 40 ft. from the ground, but the chimney is of practically equal stability from the base up to 60 ft. from the ground.

A diagram of a chimney designed by the author, of the same height and internal diameter as the above-mentioned regulation chimney, was shown, the author observing that the shaft could at all joints withstand a wind pressure equivalent to at least 50 lb. per ft.<sup>2</sup> on a plane surface with zero stress on the windward edge, or in other words, the stability of this shaft is practically 20 per cent. greater than the regulation chimney of equal height and diameter, and at the same time the weight

\* Extracts from a paper read at the thirty-eighth ordinary general meeting of the Concrete Institute.



is 20 per cent. less, so that a proper distribution of the material enables greatly increased stability to be obtained by the use of considerably less material than is permitted by the regulations. The author has not pursued the investigation into the stability of the regulation chimney shaft further, but it is probable that at a height of about 250 ft. the regulation chimney shaft would be of adequate stability, although the weight would be very excessive. In the case of square chimneys the regulation shaft would, of course, be of less stability for the smaller diameters, and in the case of a square chimney 100 ft. high the limit of safety is reached with a wind pressure equivalent to 18.33 lb. per ft.<sup>2</sup>.

It will be seen, therefore, that a chimney shaft constructed according to the London Building Act or other similar regulations is either of insufficient stability or excessive weight, while in many cases the weight is excessive at the same time that the stability is inadequate, and it would appear under these conditions that an amendment of the existing regulations governing the construction of brick chimney shafts would be very desirable, and in the author's opinion the regulations should not specify either minimum diameters, a minimum batter, or minimum thicknesses of walls, but that in the interests both of safety and economy it is necessary that the regulations should specify a wind pressure which chimneys should be designed to withstand, and that when subjected to the specified wind pressure no portion of any bed joint should be under tensile stress, or under compressive stress of greater than a specified maximum intensity.

#### NEW WAR OFFICE BUILDING, VIENNA.

The new Austro-Hungarian War Office building, which has been erected at a cost of nearly half a million sterling, and is now ready for occupation, occupies a commanding position on the Ringstrasse, with a frontage of 660 ft. and an average depth of 200 ft. There are seven floors, with a capacity of some 425,000 cubic yards, and the façade has a height of 100 ft. The actual cost of the building was 10,500,000 crowns (£440,000), and the interior equipment and furnishings cost another million crowns (£42,000). The buildings show a certain military simplicity without any particular pretensions to architectural beauty. Sixty-four Austrian and Hungarian architects submitted competitive designs, and that of Government Surveyor Baumann was selected and given the first prize. The work, begun in October, 1909, was carried out under the supervision of the Army Engineering Department. The building occupies an island site with four frontages and contains nine interior courts. One of these, 130 ft. in length, has been covered with a glass roof and will be used as a riding school. Altogether there are 2,500 rooms arranged on the single-corridor plan, ensuring ample daylight and natural ventilation. On the first floor, in the centre of the Ringstrasse front, is a magnificent council chamber, "beautifully decorated in coloured marbles and rising to a height of two floors.

#### *New Tivoli, New Brighton, Cheshire.*

The architect for the above theatre, Mr. Colin S. Brothers, of Liverpool, has placed the whole of the fibrous plaster and decorative work in the hands of Messrs. John Tanner and Son, of Westminster.

## TRADE AND CRAFT.

### *Fireclay Ware and Sanitary Fittings.*

Messrs. W. R. Pickup and Co., Ltd., Pearl Brook Works, Horwich, Lancs., have issued a fine new catalogue of their porcelain enamelled Fireclay Ware and general sanitary fittings. The sections comprised—the position of each being very conveniently indicated by a projecting canvas tab, which enables instant reference to any class of goods—are: baths, urinals, closets, sinks, lavatories, and hospital specialties. All this firm's manufactures are guaranteed non-crazing, non-shelling, impervious and unaffected by exposure to the open air under any climatic conditions, only specially selected clays, prepared and blended to yield the maximum strength and rigidity, being employed and the resultant productions being, therefore, exceedingly hard, thoroughly vitrified, of even texture, and covered with a close, vitreous and inseparable leadless enamel, applied by a special process which ensures perfect cohesion between the clay and the enamel, the exceptionally high temperature to which the ware is subjected producing a brilliant surface with uniform richness of colour.

The fireclay baths illustrated in the catalogue are the parallel roll-edge bath, the Roman and Grecian patterns of exquisite form, a sitz-bath, a foot-bath, a bidet, and a shower and spray. Baths of porcelain enamelled cast iron are stocked in many shapes and sizes, and attractive typical designs are shown in the catalogue, these being respectively designated the Diamond, the Pearl, and the Opal. They are porcelain-enamelled inside, and finished plain-painted or otherwise outside. In the same section, needle and spray fittings, made of solid-drawn tubes of brass or copper, with gunmetal valves, unions, and fittings, are listed in variety; and several pages are devoted to towel-rails, gownholders, and bathroom and lavatory accessories.

Urinal stalls for conveniences are shown in groups and ranges of varying shape and extent, with backs, ends, and divisions, of different patterns and materials. Floor channels, flushing cisterns, cistern brackets, gratings, etc., complete this important section, which may be consulted with advantage by all who are interested in this aspect of sanitation.

Equally valuable sections are those in which closets, sinks, and lavatories are respectively illustrated. Handsome designs predominate in all three sections. A perfect-flushing, strong, and serviceable straight-backed closet is the Pike wash-down pedestal, which has been largely adopted by municipal and urban authorities. Similar in design, except for its semi-recessed front, is the Bolton. Other serviceable types illustrated are the Diamond, Ruby, Emerald and Pearl closets, the combination closets with low-down cisterns, and wash-out pedestal closets of several patterns. There are, besides, several styles of automatic flushing closets, and other closet ranges suitable for schools and institutions. Seats, flushing tanks, cistern brackets, etc., are also listed. Sinks—single, double, and triple—are shown of many types and patterns; and several designs of fireclay wash-tubs, drip trays, and laboratory sinks are figured and priced.

The lavatories shown are without exception elegant in shape, and the polished gunmetal and other fittings and gratings are most handsome, and always embody the most serviceable devices. Besides the beautiful lavatories designed for high-class

interiors, there are lavatory ranges of various types and sizes, including a useful trough form, as well as combined sink and lavatory sets. Every kind of lavatory fitting is here listed. The sixth and concluding section comprises closets, slop-hoppers, sinks, bed-pan and bottle sinks, combined sink and slop-hopper, lavatories and combined sink and lavatory for hospitals, mortuary tables, and other special appliances.

### *The "Hue" Barless Fire.*

Barless fires would be far more generally adopted if it were not for the trouble and expense that are supposed to attend their substitution for the old-fashioned type of grate. That the difficulties of making the change are either wholly imaginary or greatly exaggerated is seen from an illustrated booklet which has been issued by Messrs. Young and Marten, Ltd., of Stratford, London, E., who are patentees and sole proprietors of the "Hue" adaptable barless fire, which represents an easy, inexpensive, and efficient method of converting the old-fashioned grate into a modern barless stove, without the necessity of pulling down mantelpieces and removing existing stoves. The "Hue" fire, however, is not a makeshift, but a substantially constructed barless grate which rests on the hearth after the removal of the bottom grating of the old stove. In fitting this barless fire, there is no necessity for any special floor construction, as there need be no alterations to the hearth. The "Hue" fire consists of a very strong cast-iron basket with extra stout removable bottom grating, and ash-pan fitted with air regulator, and there is a modified pattern for grates possessing shallow fires. Numerous testimonials printed in the booklet support the claims that this barless fire is exceptionally cleanly in action, that it requires hardly any attention, and that, as compared with the old-fashioned fire, it gives out a great deal more heat for a much smaller consumption of fuel. Moreover, it is of incomparably neater appearance.

### *"Electric" Rubber Hose.*

"On, in, or about" a building, as the legal phrase has it, there are many occasions for the use of hose, whether the building is already complete or is only in the making. To the builder in the City of London its use is not confined to the ordinary operations of mixing and sprinkling, but is virtually compulsory for keeping down the dust. The hose used by builders is subjected to extraordinarily rough usage, as it must be dragged about over places that are strewn with jagged or gritty materials. Messrs. W. A. Green, of Caxton House, Westminster, have solved the problem of producing a hose that combines the properties of flexibility and strength, which had been previously assumed to be antagonistic, or at least incompatible. They are obtained by an ingenious system of construction, in which successive tubes of rubber, each tube of a different thickness, are alternated with layers of braided cotton twine, an outer covering of vulcanised and corrugated rubber completing a hose that can neither kink nor burst. This particular pattern is stocked in a full range of diameters, from ½-in. to 3-in., and in three strengths, and armoured patterns can be supplied, as well as hose modified for pneumatic and vacuum work, and for the conveyance of oil, gas, and chemicals.



## PROJECTED NEW WORKS.

L.C.C. BUILDING ACTS COMMITTEE'S  
RECOMMENDATIONS.

The following recommendations to the Council by the Building Acts Committee are abridged from the report submitted to the Council. Each recommendation is usually accompanied by more or less formal conditions, which, as a rule, are here omitted:

*Clapham.*—Erection of bay-windows, porches, oriel windows, and bargeboards to houses on both sides of Alfriston Road, Clapham, as amended by the plan, submitted in connection with the application of Mr. E. J. George, on behalf of Mr. W. H. George.—Consent.

*Fulham.*—Erection of a one-storey shop at the rear of No. 417, North End Road, Fulham, abutting on Armadale Road, on the application of Messrs. T. Jay-Evans and Son, on behalf of Mr. F. H. Barber.—Consent.

*City of London.*—Erection of a building upon a site abutting upon New Bridge Street, William Street, Kingscote Street, and Tudor Street, City, on the application of Mr. F. W. Troup, on behalf of Messrs. Spicer Brothers and Co.—Consent.

*Westminster.*—Erection of a projecting shop at No. 141, Victoria Street, Westminster, to the line shown on the plan submitted in connection with the application of Sims and Woods, Ltd.—Consent.

*City of London.*—Retention of an iron and glass shelter over the Bishopsgate entrance to the Liverpool Street Station of the Central London Railway, Bishopsgate, City, on the application of Mr. W. E. Mandelick, on behalf of the Central London Railway Company.—Consent.

*Clapham.*—Erection of eight houses with two-storey bay windows on the eastern side of King's Avenue, Wandsworth, on the application of Messrs. H. F. Buchan and Co.—Consent.

*Fulham.*—Erection of a building on the northern side of Broughton Road, Fulham, on the application of Mr. W. J. Marston, on behalf of Loud and Western, Ltd.—Consent.

*Islington, North.*—Erection of a clock on the flat roof at No. 95, Seven Sisters Road, Islington, on the application of Greenwich Time, Ltd., on behalf of Mr. J. Essex.—Consent.

*Kensington, South.*—Retention of a conservatory over the porch at No. 13, Brechin Place, Kensington, on the application of G. Anderson and Sons.—Consent.

*Kensington, South.*—Retention of a projecting shop front at No. 48, Beauchamp Place, Brompton Road, Kensington, on the application of Madame S. Cooper.—Consent.

*Lewisham.*—Extension of the period within which the erection of buildings on the northern side of George Lane and the eastern side of Roxley Road, Lewisham, was required to be commenced and completed, on the application of Mr. P. Roche.—Consent.

*Wandsworth.*—Erection of a motor garage at the rear of No. 8, Becmead Avenue, Streatham, next to Ockley Road, on the application of Mr. J. L. Goldspink.—Consent.

*Westminster.*—That the application of Messrs. Z. King and Son for an extension of the periods within which the erection of a projecting one-storey shop at No. 165, Victoria Street, Westminster, was required to be commenced and completed be granted.—Consent.

*Hackney, Central.*—Erection of a building upon the site of No. 277, Mare Street, Hackney, to the line shown on the plan submitted with the application of Mr. G. A. Lansdown, on behalf of Mr. A. Rosenberg.—Refusal. But the Council would be prepared favourably to consider an amended application accompanied by a plan showing the frontage of the building as to be kept back to a line at a distance of 80 ft. from the opposite side of the road and the land in front of such line as to be surrendered to the public.

*Hackney, South.*—Erection of an iron and glass shelter in front of the South Hackney Picture Palace, Wells Street, Hackney, as shown on the plan submitted with the application of Mr. P. Cornish. Consent refused, as it is not the practice of the Council to permit the erection of shelters at the entrances to cinematograph theatres.—Refusal.

*Finsbury, Central.*—*Width of Way.*—Erection of a building on the western side of Mulberry Place, Finsbury, as shown on the plans submitted with the application of Major C. E. Dance, on behalf of the Marquess of Northampton.—Consent.

*Islington, West.*—Erection of an iron and glass roof over a yard at the rear of the Butcher's Arms public-house, York Road, Islington, to the line shown on the plan submitted with the application of Mr. E. Faux.—Consent.

*Limhouse.*—Erection of a projecting shop front at No. 32, Grenade Street, Limehouse, on the application of the Toynbee Building and Decorating Company, on behalf of Mr. M. B. Levy.—Consent.

*Newington, West.*—Erection of a building at the Blue House Laundry, on the northern side of Sutherland Place, Walworth, on the application of Mr. G. H. Crickmay.—Consent.

*Kensington, South.*—*Width of Way and Line of Frontage.*—Retention of an iron and glass covered way at the entrance to No. 3, Douro Place, Victoria Road, Kensington.—Consent.

*Marylebone, West.*—Erection of three blocks of flats upon a site abutting upon St. John's Wood Road and Grove End Road, St. Marylebone, as shown on the plans as modified by the amended elevation submitted in connection with the application of Mr. A. Davis.—Consent.

*Clapham.*—*Line of Frontage and Construction.*—Retention of a temporary gantry on the eastern side of Tennyson Road, Battersea, on the application of Mr. D. Thompson.—Consent.

*Strand.*—Consent to projecting cornices at the proposed Commonwealth Building, to abut upon Strand, Aldwych, and Melbourne Place, as shown on the plans submitted with the application of Messrs. A. Marshall Mackenzie and Son.—Consent. Refusal to relax the provisions of subsections (3) and (4) of section 22 of the London County Council (General Powers) Act, 1900, so far as regards the protection of steelwork in external walls at the proposed Commonwealth Building, Strand, Aldwych, and Melbourne Place, as no reason is seen why the protection of the said steelwork should be of less thickness than that prescribed by the said Act.—Refusal.

*Islington, West.*—*Space at Rear.*—Modification of the provisions of the Act with regard to open spaces about buildings, so far as relates to the proposed erection of Nos. 560, 562, and 564, Caledonian Road, Islington, with irregular open spaces at the rear, as shown on the plans submitted with the application of Mr. A.

Dawkins, on behalf of Mr. R. B. Mason.—Consent.

*Marylebone, West.*—Modification of the provisions of the Act with regard to open spaces about buildings, so far as relates to the proposed erection of a building on the site of Nos. 22-26, York Place, St. Marylebone, with an irregular open space at rear, as shown on the plans, as amended by the further plan, submitted in connection with the application of Mr. J. Hudson.—Consent.

*Westminster.*—Modification of the provisions of the Act with regard to open spaces about buildings, so far as relates to the proposed reconstruction of No. 1, Buckingham Street, Westminster, as shown on the plan submitted with the application of Mr. C. H. Saunders, on behalf of Fleet-surgeon A. S. Bell.—Consent.

*Chelsea.*—*Space at Rear and Projections.*—Alterations and additions and a projecting balcony at No. 103, Cheyne Walk, Chelsea, as shown on the plans, as amended, submitted with the application of Mr. J. P. Williams, on behalf of Mrs. M. Wright.—Consent.

*Clapham.*—Erection of a one-storey building at the rear of No. 137, Wakehurst Road, Clapham, next to Alfriston Road, as shown on the plan submitted with the application of Mr. W. Hagues.—Consent.

*Paddington, South.*—Alterations and additions at No. 22, Sussex Square, Paddington, as shown on the plans submitted with the application of Messrs. Garland-Smith and Co., on behalf of Mr. J. R. Cardew-Smith.—Consent.

*Lewisham.*—*Formation of Streets.*—Formation of a new street for carriage traffic to lead from Burnt Ash Hill to Manor Lane Lewisham, on the application of Mr. G. A. Lansdown, on behalf of Messrs. W. J. Scudamore and Sons.—Consent.

*Norwood.*—Refusal to sanction the formation or laying out of two ways of streets at the rear of proposed buildings on the western side of Brixton Hill, Brixton, as shown by the plan, sections, and particulars submitted with the application of Messrs. Boreham, Son, and Gladding. The Council's reasons for such refusal are that the new streets would not, at and from the time of formation and laying out, each afford direct communication between two streets formed and laid out for carriage traffic, and would not be of the full width of 40 ft. clear. The Council will be prepared to consider an amended application accompanied by a plan showing (i.) the flanks of the proposed buildings to the new road as to be kept back 5 ft. from such roadway, and (ii.) the road to the north-west as to be formed and the footway crossing the southern end of such road as to be omitted.—Refusal.

*Chelsea.*—*Buildings for the Supply of Electricity.*—Construction of engine foundations at the electricity generating station, Manor Street, Chelsea, on the application of Messrs. Walter Bridges and Co., on behalf of the Chelsea Electricity Supply Company.—Consent.

*Holborn.*—*Alteration of Buildings.*—Alterations and additions at No. 6, Queen Square, Holborn, without complying with the provisions of section 74 of the Act, on the application of Mr. F. W. Troup, on behalf of the Art Workers' Guild Trustees.—Consent.

*Marylebone, East.*—*Cubical Extent.*—Deviation from the plans approved in respect of additional cubical extent at the premises of D. H. Evans and Co., Ltd., Nos. 308-322, Oxford Street, St. Marylebone, so far as relates to the extension of



the western division over the site of No. 322, Oxford Street, on the application of Mr. John Murray, such consent being subject to the following conditions—that all the windows of the extension on the floors above the ground floor next to Chapel Place be glazed with fire-resisting glazing in fire-resisting frames; that the new constructional ironwork and columns be protected with incombustible material not less than 2 in. thick; that the district surveyor be satisfied as to the construction of the additions and alterations, and as to the sufficiency of the walls and supports to bear the additional loads imposed; that the sprinkler installation be extended to the addition, and that hand fire appliances be provided and efficiently maintained to the Council's satisfaction; and that the conditions on which the Council has approved additional cubical extent at these premises be otherwise complied with.—Consent.

*Rotherhithe.*—Deviation from the plans approved on November 26th, 1912, under section 17 of the London County Council (General Powers) Act, 1908, for additional cubical extent at the premises of Champion and Slee, Ltd., Tower Bridge Road, Rotherhithe, so far as relates to the formation of a doorway between the vaults and the vat house, as shown on the plan submitted with the application of Mr. J. M. Kennard.—Consent.

*Westminster.*—Additional cubical extent in respect of an alteration and extension of the third floors of blocks A and E at the Army and Navy Co-operative Society's premises, Victoria Street, Westminster, as shown on the plans submitted with the application of Mr. Reginald Blomfield, A.R.A., on behalf of the Army and Navy Co-operative Society, Ltd.—Consent.

*Woolwich.*—Deviation from the plans approved on March 5th, 1912, under section 17 of the London County Council (General Powers) Act, 1908, to the erection of a building exceeding 250,000 cubic feet, abutting upon the eastern side of Harden's Manorway, and the northern side of Westfield Street, Woolwich, so far as relates to the use of steel shutters instead of fire-resisting doors to openings giving access to the lift at the eastern end of the building.—Consent.

*Finsbury Central.*—*Cubical Extent and Uniting.*—Omission of double iron doors to certain division wall openings at the premises of E. Pollard and Co., Ltd., Aylesbury Street and Jerusalem Passage, Finsbury, as shown on the plans submitted with the application of Mr. E. Pollard, on behalf of E. Pollard and Co., Ltd., such consent being subject to the following and other conditions—that the window openings on the division walls in question be glazed with double fire-resisting glazing, the glazing to be in fixed lights and to be fixed on both sides of the openings at a distance not greater than  $2\frac{1}{4}$  in. from the face of the wall as proposed; that, in addition to the provision of the sprinkler installation, fire hydrants be provided on each floor level in each of the north and south-west staircase enclosures and adjacent to the external staircase at the south-east side of the building at each floor level, and that such fire appliances, including the automatic sprinklers, be provided and efficiently maintained to the satisfaction of the Council.—Consent.

*Woolwich.*—*Cubical Extent and Construction.*—Erection of a lift shaft in a building exceeding 250,000 cubic feet in extent, at the premises of Siemens

Brothers and Co., Ltd., Harden's Manorway, Woolwich, as shown on the amended plans, submitted with the application of Siemens Brothers and Co., Ltd.—Consent.

*City of London.*—*Uniting of Buildings.*—Uniting of Nos. 67 and 69, Moor-gate Street, City, by means of an opening at the ground floor level as shown on the plans submitted with the application of S. Haskins and Brothers, Ltd.—Consent.

*Finsbury, East.*—Formation of an opening at the ground-floor level between No. 117, Central Street, and No. 36, Powell Street, Finsbury, as shown on the plan submitted with the application of Messrs. Lovegrove and Papworth, on behalf of A. Baker and Co., Ltd.—Consent.

*Hampstead.*—Retention of an opening between Nos. 186 and 188, High Road, Kilburn, as shown on the plans submitted with the application of Messrs. H. L. Herbert and Co.—Consent.

*Woolwich.*—Use of iron doors, not in accordance with the provisions of the Act, to an opening at the second floor level in a division wall at the premises of Siemens Brothers and Co., Ltd., Harden's Manorway, Woolwich, as shown on the plans, as amended, submitted with the application of Siemens Brothers and Co., Ltd.—Consent.

### A "FIELD DAY" WITH THEODOLITES.

The accompanying illustration does not represent, as at first sight would be supposed, a field day of cinematograph operators; it shows a number of students at work with theodolites during the recent examinations of the Surveyors' Institution. These examinations, by the courtesy of Lord Jersey, who himself is an hon. member of the Institution, are held regularly at Osterley Park, Isleworth—an almost ideal spot on account of the plenitude of open spaces and the presence of an abundance of timber of various kinds appropriate for measuring and valuing purposes. As regards numbers, the recent examinations constituted a record. Including Scotland and Ireland, 1,011 men took part in the Intermediate, 307 in the Final, 22 in the direct Fellowship, and 150 in the Preliminary. At Osterley alone 1,231 students were present, 943 doing surveying and the remaining 288 confining

themselves to timber measuring and valuation. Sixty theodolites were in use, involving the attendance of between thirty or forty moderators to check the students' calculations. One of these officials, wearing a badge, is seen keeping a watchful eye on the proceedings at the right-hand side of the photograph.

## BOOK NOTICES.

### *Greek Refinements.*

This volume is the first instalment of the book already announced in which Mr. Goodyear is to deal with constructive asymmetries, optical illusions, and other refinements in mediæval building. It is confined to the architecture of the Greeks—or at least to that of the ancients—and thus forms a complete and separate unit in itself, the Greek temples being too far apart from the mediæval cathedrals to be coupled with them in a single volume. The author nevertheless holds the analogies to be in some directions so striking (especially as presented in the sixth chapter) and the possibilities of direct historical transmission in the case of horizontal curvatures to be so obvious that a detailed and exact account of the Greek refinements must be an essential preliminary to a treatment of the related subject in mediæval architecture, whatever may be the differences in details.

Apart from this aspect of its relation to mediæval research, the present work may be regarded as an important addition to our knowledge of Greek temple architecture as a wholly independent study. It gathers together a great deal of hitherto unconnected and little known data, arranges evidence in a scholarly fashion, and offers, in a form neither too diffuse nor too condensed, reasonable explanations of the purpose of Greek refinements. The unsoundness of many of Penrose's views, and of the optical theory generally, is clearly proved, whilst a good case is made for the hypothesis that the Greeks enjoyed subtle horizontal curvatures for their own sake, that these curves appealed to a trained sense which, for good or bad, has long since almost ceased to exist.

A careful study of systematic and acci-



Photo: Clarke & Hyde.

A "FIELD DAY" WITH THEODOLITES.



dental irregularities in Greek temples is made in the last two chapters. It is difficult not to share Durm's scepticism as to the calculated intention and appreciable effect of such variations. The actual figures and the progressive gradations they indicate are, however, undeniably surprising and merit consideration.

Without detracting from the importance of the author's labours, it may be said that their value is chiefly archæological. The conditions of modern civilisation and of modern architectural practice are all against the advisability of attempting imitation of refinements evolved under remote circumstances of a widely different character. There is no doubt that the adoption of many of the horizontal curvatures used by the Greek architects would tend, as it did in their masterpieces, to give increased scale and grandeur and also certain perspective illusions. But all this only in a comparative degree and only in simple works of a kind not typical of modern building problems.

Mr. Goodyear's book will be of real assistance to all who would achieve more than a superficial knowledge of the character of Greek architecture. It has come at an opportune time, to revive interest in a neglected subject.

"Greek Refinements: Studies in Temperamental Architecture." By William Henry Goodyear, M.A. Price £2 10s. net. Henry Frowde, Oxford University Press.

## A MODERN BUILDING FIRM.

That some of the most progressive building firms of the present day should possess reputations extending back for nearly a century is a circumstance that does considerable credit to the building industry. A record of this kind is a guarantee of good

work done in the past, and a surety of equally good work in the future. Happily, the destinies of a number of building firms are still directed by the descendants of the original founders, who, being naturally jealous of the high reputation achieved, refuse to allow any falling away from the standard of work established.

The firm of Messrs. W. Nicholson and Son, Ltd., founded, in 1820, by the grandfather of the present managing director, Mr. W. Nicholson, J.P., may be cited as an admirable illustration of the foregoing remarks. To the personal ability of Mr. Nicholson (who, it may be mentioned, has recently completed his year of office as Lord Mayor of Leeds) is due in a large measure the present success of the business, which, under his direction, has been considerably developed and can now claim to be the largest in the North of England.

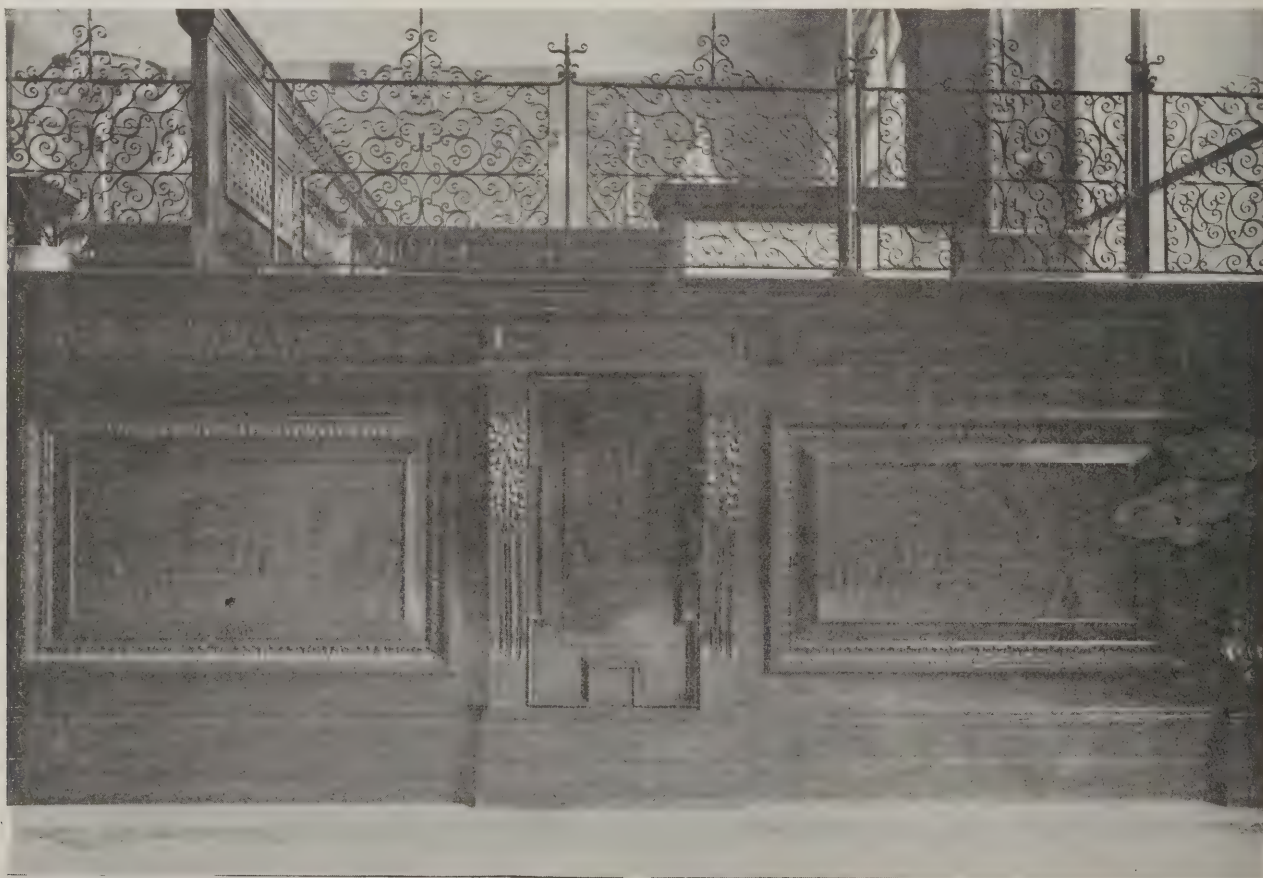
Messrs. W. Nicholson and Son possess extensive up-to-date works at Hunslet, Leeds (in all covering about four acres of ground), where they have the largest joiners' shop in that part of the country, keeping in constant employment a staff of about 100 highly skilled British joiners. The works throughout are fitted with all the latest improvements in wood and stone-working machinery. They have also very extensive timber yards and drying sheds, carrying a large stock of seasoned materials which enable them to tackle any job at a few days' notice. In this connection it may be mentioned that, after the fire at the Midland Railway station, Leeds, the firm accomplished a record performance in building a bridge for the company in the remarkably short time of five days, the cost (£3,600) sufficiently proving that it was by no means an unimportant work.

Messrs. Nicholson have erected many public buildings, railway stations, hotels, banks, etc., and executed fittings contracts, in all parts of the country. They also act

as district contractors to the Midland, Great Northern, London and North-Western, North-Eastern, and Lancashire and Yorkshire Railway Companies. An important contract recently carried out in London is an equipment of bank fittings at the new branch of the London City and Midland Bank, in Chancery Lane, located on the ground-floor of the new building for the Law Union and Rock Insurance Co., Ltd.

On entering this bank, one is immediately struck by the fine appearance of the interior, panels of exquisitely figured black walnut (roe and broken mottle variety) forming the front of the counter, intersected by carved consoles carrying the cushion mould, which has vine leaves and grapes carved out in strong relief, the whole being surmounted by a handsome teak counter top, 4 ft. wide by over 50 ft. in length. With bevelled edges and carved bolection mould, the work is shown off to great advantage, and the contractors are to be congratulated on being able to obtain such perfect examples of a very rare variety of wood. Beyond the counter is the ledger desk screen. Particularly noticeable are the carved handles of the silver box doors with artistic little panels, broken, however, by brass grilles, surmounted by a dentilled capping mould.

The window linings, the blind boxes, dadoes, sunk-moulded pilaster, and carved caps are all worthy of close inspection, being moulded out of the solid walnut, and glazed with embossed glass. The manager's office has a walnut dado 3 ft. 4 in. high, with solid panels, as beautifully figured as those in front of the counter, the moulded soffit and bevelled glass all helping to form a very handsome room. The work, which includes many other interesting ideas and devices, was carried out from the designs of Mr. T. B. Whinney, F.R.I.B.A.



COUNTER AND GRILLE, LONDON CITY AND MIDLAND BANK, CHANCERY LANE, LONDON.  
T. B. WHINNEY, F.R.I.B.A., ARCHITECT.



## COMPETITIONS.

### *New Offices for Barnet U.D.C.*

The successful architects in this authority's office competition were as follows: (1) Mr. H. A. Cheers, Kensington; (2) Messrs. White, Son, and Pill, Barnet; (3) Mr. R. J. Lovell, High Holborn. The premiums were £25, £15, and £10.

### *New Municipal Buildings, Devonport.*

Saturday, June 14th, was the last day for receiving designs for the new municipal buildings proposed to be erected by the Corporation of Devonport, and about eighty-five competitors have sent in plans. Mr. Ernest Newton, A.R.A., F.R.I.B.A., is the assessor. The site consists of about 3½ acres, and is the property of the Corporation. The premiums are £350, £150, and £100. The total cost of the Municipal Offices and Guildhall is not to exceed £95,000.

### *Blackburn Improvement Scheme.*

In response to the invitation by Blackburn Corporation of plans for the improvement of the centre of the town, between thirty and forty schemes were submitted. Professor Adshead, the assessor, has submitted the following awards for the approval of the Highways Committee: 1 (£100), J. M. Linton Bogle, Pensby Lodge, Heswall, Cheshire; 2 (£50), Walter Stirrup, 14, Richmond Terrace, Blackburn; 3 (£25), Briggs, Wolstenholme, and Thornely, Richmond Terrace, Blackburn. Schemes by Messrs. W. Greenwood and John Haworth, Blackburn; Messrs. Lancaster and Rickards, London; and Mr. Q. Mangnall Bluhm, St. Annes, were "recommended by the assessor."

### *Rome Scholarship in Architecture.*

The Faculty of Architecture of the British School at Rome met recently to assess the designs submitted by competitors in the first competition for the Rome Scholarship in Architecture, and selected from among them the following to compete in the final competition: Thomas Braddock, H. C. Bradshaw, Ernest Cormier, Richard Duckett, Louis de Soissons, William H. Thompson, and Edward G. Wylie. Two of the seven—Mr. Bradshaw and Mr. Thompson—were trained in the Liverpool School of Architecture. Mr. Duckett and Mr. de Soissons are also eligible for the Jarvis Studentship of the Royal Institute of British Architects.

The selection was made on designs submitted for a modern technical university on the outskirts of a large industrial town. The university was approached by a bridge over a wide river, and had to include, beside the various laboratories and halls, gymnasia, swimming pool, and a stadium for the students.

The English Prix de Rome is open to all British subjects under the age of thirty, and is a scholarship of £200 for three years with free studio accommodation at the new British School recently founded in Rome.

### *Consett Baptist Schools.*

The design submitted by Messrs. George Baines and Son in open competition has been adopted, and the building is to be proceeded with at once.

### *The New Government Building for Whitehall.*

In the House of Commons on June 13th, Mr. Wedgwood Benn, replying to criticisms arising out of the report of the vote of £136,000 for sundry public buildings, stated that the new building to be erected

on the Board of Trade site would be erected from designs obtained in open competition, and the designs would be exhibited in South Kensington Museum.

### *New Canadian Parliament Buildings, Ottawa.*

The names of the two architects who, as announced in last week's issue, are to act in conjunction with Mr. Colclutt as assessors in this competition, are not yet made public. We understand, however, that one is to be appointed by the Canadian Government and the other by the Canadian Institute of Architects.

### *Municipal Technical Institute, Coventry.*

It is proposed to build a new municipal technical institute for Coventry at a cost not exceeding £25,000 and to arrange an open competition for the designs. The special committee having the matter in hand have drafted conditions (to be approved by the Council) which include the following suggestions:

"That the committee be authorised to appoint the architect whose plans are selected as architect for the work, at an inclusive fee of £1,000."

It is proposed to include in the building the following departments: Administration, Engineering, Textile Trades, Building Trades, Science, Commercial, and General. In the Administration Section the accommodation suggested is as follows: Principal's room, clerk's office, vice-principal's room, teachers' common room, students' common room and library, examination and assembly hall (to seat at least 500 people), vestibule, porters' and telephone box, caretakers' apartments, lavatories and cloak room, stores, cycle sheds, heating chamber and coals.

For the Engineering Section the accommodation is to include: Mechanical workshop, including blacksmith's shop, erecting, fitting, precision engineering and stores, power and electrical laboratory, applied mechanics laboratory, applied mechanics lecture room, drawing office, two lecture rooms, boiler house and stores.

For the Textile Trades department it is suggested to provide: Weaving shed, drawing office and lecture room, and stores; and for the Building Trades: Plumber's shop, woodwork, pattern making and metal workshop, lecture room and stores.

The Science Section accommodation sought is: Physics laboratory, chemical laboratory (including electro deposition and furnace room for heat treatment), balance room and preparation room, chemical lecture class-room and preparation room, photographic room, and stores.

The Commercial and General Department will be provided for in: Two class-rooms (each with folding partitions) and sixteen class-rooms.

The draft instructions to architects provide that the committee will not consider any design of which the total estimated cost for carrying out exceeds £25,000.

## LONDON MASTER BUILDERS' ASSOCIATION.

The ordinary meeting of the Council was held on June 10th at Koh-i-Noor House, Kingsway, W.C., the President (Mr. Walter Lawrence, jun.) being in the chair.

Reports of the Finance and Special Committees were received and approved.

The President reported fully as to the proceedings in respect to the strike of plasterers, and stated that conferences had

taken place with the representatives of the National Association of Operative Plasterers (London District Committee) on May 27th last at the offices of the Board of Trade and also at Koh-i-Noor House on June 2nd. The conference resulted in an offer being made to the operatives, which up to the present date (June 21st) has not been accepted.

Correspondence relating to trade matters was considered.

A number of new members were elected and nominations for membership were received and accepted.

## OBITUARY.

### *Mr. W. C. Williams, F.R.I.B.A.*

Mr. William Clement Williams, F.R.I.B.A., of Halifax, who has died in his sixty-seventh year, at Port Erin, Isle of Man, had designed the Poor Law Hospital at Salterhebble, the Halifax and Huddersfield Union Bank, the Victoria Hall (which has been described as the finest concert hall in the West Riding), and a large number of other buildings, including churches, chapels, and factories. His hobbies were water-colour painting and photography, and for photographic exhibition work he had won more than fifty medals and diplomas.

### *Mr. Charles Adami.*

Mr. Charles Adami, the assistant secretary of the British Fire Prevention Committee and senior permanent official of that body, died after a short illness on Friday week at St. Thomas's Hospital, having still attended to his duties on the Wednesday previously.

### *Proposed Inspection of Cranes and Derricks.*

The Law and Parliamentary Committee of Holborn Borough Council have expressed the opinion that cranes and other similar appliances should be subject to the supervision of local or other authorities. Before deciding what steps should be taken, the committee think it desirable to obtain concerted action with the other metropolitan borough councils.

### *Building Trade Wages.*

The joint conference between the general labourers' representatives and masters in the building trade at Blackburn have arrived at a settlement of the dispute. Hod-carriers, plasterers' labourers, and flaggers and slaters' labourers are having their wages increased from 6½d. per hour to 7d., and navvies and joiners' labourers from 5½d. to 6d. The masters decided that woodyard labourers did not come within their jurisdiction. The advances will come into force on August 1.

### *The Danger to St. Paul's Cathedral: Inspection by Architects.*

In view of the disquieting report drawn up by Sir Francis Fox on the dangers threatening the stability of St. Paul's Cathedral, Mr. Mervyn Macartney, F.R.I.B.A., the surveyor to the cathedral, invited the members of the Council of the Royal Institute of British Architects to pay a visit to the cathedral, and, guided by himself and Sir Francis Fox, to inspect the fabric and view the evidences of injury caused by the instability of the foundations. Accordingly last week two parties of leading architects, including Mr. Reginald Blomfield, A.R.A., president of the R.I.B.A., have inspected the cathedral.



## MOTOR NOTES FOR BUILDERS AND ARCHITECTS.

*Purchasing Commercial Vehicle Equipment involves considerable forethought. By studying the following analysis the buyer can then purchase with a certain amount of knowledge.*

WHEN business executives, particularly those in large organisations, have assumed the responsibility of purchasing large motor truck equipments, they are confronted with a many-sided problem which is much more involved than they may anticipate at first sight. The external appearance of a majority of trucks which are now being marketed is so attractive that very little real insight can be gained as to the value of the equipment without going into a great many details concerning the manufacturing establishment which has produced the machine design upon which it is founded, the character of organisation in the manufacturing establishment, and the service history of the particular machine in question.

There are no set rules for the determination of what constitutes a good machine against an indifferent one that can be handled by the buyer, which will enable him to purchase without error; but our desire is to place before him in a categorical manner a variety of suggestions which will enable him to concentrate his attention in such directions as will develop the good, bad, or indifferent features of the truck. Following this idea, we submit the subjoined series of questions, and, whenever answers are not obvious, we offer a few suggestions which may afford enlightenment as to the value of the inquiry.

### *The Manufacturer.*

1. What is the present financial status of the concern in question, and the character of its capital? Is the capital speculative?

A great many automobile manufacturing concerns have had mushroom growth, based upon the belief that very large returns are to be secured. The majority of such have ended disastrously.

2. Is the capital of an investment character?

Many of the motor-truck producing concerns to-day are constructed upon the most conservative basis as far as financial returns are concerned, with a thorough knowledge that during the preliminary stages of such a young industry profits are not to be expected, but development in the right direction will earn ample legitimate returns on the investment originally made.

3. What is the age of the concern?

Has it been in business over a sufficiently long period to command a complete knowledge of the development of the industry, or has it recently sprung into existence based on the hope that it might capitalise to its great advantage on the past experience of others, without sharing any of the financial risk or burden?

4. Has it been developed entirely for automobile manufacture, or is this line merely an offshoot of an older established business?

5. If strictly an automobile manufacturing concern, was it originally founded for truck manufacture, or is truck manufacture a development of previous pleasure car manufacture?

Many concerns more or less successful in the pleasure car business have looked upon motor truck production as a natural sequence. Sometimes the motor truck is taken up to requite the lost fortunes of a pleasure car venture. Sometimes the motor truck project is undertaken in the

belief that there is no difference between the pleasure vehicle and a machine to haul merchandise.

6. If manufacturing trucks exclusively, what is the magnitude of the undertaking?

The purchaser is interested in learning whether the manufacturer is making a snapshot effort or is deeply concerned in founding a large, permanent undertaking.

7. Are the founders experienced in transportation problems?

The transportation problem is almost as old as humanity, and has developed by very slow degrees. Some speculative minds imagine that they can accumulate the entire experience of the past simply by observation and very slight effort.

8. Is the company part of a large combination of interests?

If so, it may or may not have advantages. The chances are against it, since the problem is so intricate and absorbing as to command complete isolation and concentration.

9. If part of a combination, what are its antecedents?

Has it been absorbed for speculative purposes, and how long is it likely to remain as at present constituted?

10. If absorbed, what were the underlying motives?

Sometimes combinations take place for the benefits arising from co-operative management; sometimes union is a necessity on account of failures and debt.

11. Has the manufacturer ever been in bankruptcy?

12. What influence has any change of organisation had on the product?

Quite frequently the entire character of the machine changes, and the older product is thus rendered obsolete.

13. Has the executive personnel changed with the reorganisation?

This is quite frequently the case, and it almost necessarily involves a complete change of past policies and practice, perhaps with improvement to the new product, but depreciating the old product in the hands of those who have paid for it.

14. How have the former users been cared for?

A good deal can be learned from ascertaining the sentiments of the users of the company's earlier product.

15. Has the investment of former purchasers depreciated on account of organisational changes?

The responsibility of buying machines which will have a permanent market value demands inquiry in this direction.

16. If not manufacturing motor trucks exclusively, what is the ratio of the truck business to the older established line?

Answer to this question will indicate whether the truck line will increase or decline.

17. How much importance is attached to the motor truck business?

We frequently find manufacturers largely interested in other lines who undertake motor truck manufacture without believing seriously that the venture is a good one. Consequently, it is usually kept in a state of suppression.

18. What influence have old business methods upon the new project?

Occasionally established practice is with

much difficulty made to accommodate the new exigencies.

19. Is the motor truck product marketed through the older sales organisation?

If so, there are many impediments tending to obstruct the progress of the business and the rights of purchasers.

20. Is the administration sympathetic with the new venture or not?

This has a remarkable influence on the quality and value of the product and its subsequent development.

21. Is reputation of old product made to cover defects of the new?

Advertising has wonderful influences, and it should be borne in mind that success in one direction does not guarantee success in another.

22. How extensive, territorially, is the organisation?

If it is a national institution its policy and practice are likely to be based on a large experience than a smaller concern.

23. Is the motor truck business likely to be dropped if unsuccessful?

A good deal of danger lies in this direction with large combination institutions.

24. Is company owned by any trust?

Sometimes this is advantageous, sometimes otherwise.

25. Is trust influence established to boost the product?

Experience has indicated that broad and ramifying influences may introduce trucks extensively.

26. What, if any, other line of business are owners interested in?

Valuable inference may be made from information of this character.

27. Is the company largely in the hands of bankers or stable merchants?

The permanent stability of the organisation is very seriously influenced by the character of its ownership.

28. Is there likely to be any manipulation of company's securities?

Such would have its influence on the value and permanence of the product.

29. Is the business profitable or not?

Customers may expect treatment accordingly.

30. Can it live up to its obligations? Is it big enough to be liberal? How do past customers regard its treatment of them?

### *Broad Sanctuary, Westminster.*

The Bill to empower the governors of Westminster Hospital to sell the site of the institution in Broad Sanctuary and to acquire lands for the erection of a new hospital has been reported for third reading. Mr. Cripps, Parliamentary agent, informed the House of Commons Committee on Unopposed Bills that the opposition of the London County Council had been withdrawn, a plan having been agreed upon between them and the hospital authorities. That plan provided for throwing certain portions of the site into the public streets. By Clause 10 the Office of Works were to have complete control over the building and site. Sir J. Wolfe Barry produced the plan, and stated that the portions of the site thrown into the public streets would have the effect of widening Broad Sanctuary from 63 ft. to 70 ft. and Prince's Street from 33 ft. to 40 ft.





















UNIVERSITY OF ILLINOIS-URBANA



3 0112 074283398